UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

February 14, 2012

Mr. Paul Freeman
Site Vice President, North Region
Seabrook Nuclear Power Plant
NextEra Energy Seabrook, LLC
c/o Mr. Michael O'Keefe
P.O. Box 300
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - NRC INTEGRATED INSPECTION REPORT 05000443/2011005

Dear Mr. Freeman:

On December 31, 2011, 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 10, 2012, with Mr. T. Vehec 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 one self-revealing finding of very low safety significance (Green). The finding did not involve a violation of NRC requirements. Additionally, a licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of its very low safety significance, and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest any NCVs 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, U. S. 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 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 10 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 Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document 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***/

Arthur L. Burritt, Chief
Reactor Projects Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000443/2011005
w/ Attachment: Supplementary Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	05000443/2011005
Licensee:	NextEra Energy Seabrook, LLC
Facility:	Seabrook Station, Unit No.1
Location:	Seabrook, New Hampshire 03874
Dates:	October 1, 2011 through December 31, 2011
Inspectors:	W. Raymond, Senior Resident Inspector J. Johnson, Resident Inspector J. Lilliendahl, Reactor Inspector T. Moslak, Regional Inspector B. Dionne, Regional Inspector D. Silk, Senior Operations Engineer S. Barr, Sr. Emergency Preparedness Specialist S. Chaudhary, Reactor Inspector T. Burns, Reactor Inspector
Approved by:	Arthur Burritt, Chief Reactor Projects Branch 3 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000443/2011005; 10/01/2011-12/31/2011; Seabrook Station, Unit No. 1; Routine Integrated Report; Follow up of Events.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one finding of very low safety significance (Green), which was an NCV. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

Green. A self-revealing finding was identified regarding the improper restoration of a condensate pump that resulted in a reactor trip. NextEra workers aligned the 'B' condensate pump for service following maintenance without first venting air from the pump casing in accordance with the system operating procedure. The finding is greater than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone, and because it adversely affects the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609 and determined that the finding is of very low safety significance. The finding has a cross-cutting aspect in the area of human performance because NextEra did not ensure that adequate procedures and work packages were available (H.2.c). Specifically, neither the work package nor tagout used to restore the condensate pump to service vented the pump casing, and as a result, air from the pump entered the condensate-feedwater train causing a reactor trip when the "A" main feedwater pump tripped on low suction pressure. (Section 4OA3)

Other Findings

A violation of very low safety significance identified by NextEra was reviewed by the inspectors. Corrective actions taken or planned by NextEra have been entered into NextEra's corrective action program. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Seabrook operated at full power at the start of the period and experienced a reactor trip on October 6, 2011, following the loss of the "A" main feedwater pump during maintenance on the condensate system. The plant was cooled down to Mode 5 for maintenance on the main turbine, a pressurizer code safety valve, a safety injection check valve, and the cooling supply to the emergency diesel generators. Plant startup was held at 16% FP on October 18, 2011, due to adverse chemistry conditions in the steam generators. The plant was taken to Mode 5 on October 20, 2011 to flush the main condenser and condensate system. Seabrook resumed full power operation on October 30, 2011. Plant load was reduced to 64% FP on December 14, 2011, due to reduced cooling flow through the generator stator caused by corrosion related blockage in the stator flow channels. The plant operated at reduced load for the remainder of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of NextEra's readiness for seasonal extreme weather conditions. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications, control room logs, and the corrective action program to determine what temperatures or other seasonal weather could challenge these systems, and to ensure NextEra personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including NextEra's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 1 sample)

a. Inspection Scope

The inspectors performed partial walkdowns of the following system:

- The "A" emergency diesel generator (EDG) during operation with the B EDG unavailable during October 7 and 8, 2011

The inspectors selected these systems based on their risk-significance for the current plant configuration or following realignment. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, 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.

b. Findings

No findings were identified.

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

a. Inspection Scope

On October 25-28, 2011, the inspectors performed a complete system walkdown of accessible portions of the auxiliary feedwater system to verify the existing equipment lineup was correct. 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 operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether NextEra staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization. Additionally, the inspectors reviewed a sample of related condition reports and work orders to ensure NextEra appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

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

- Control Building 75 ft elevation on December 20, 2011
- Cooling Tower 22 ft and 46 ft elevation on December 20, 2011
- Service Water Pump House 22 ft elevation on December 22, 2011
- Emergency Feedwater Pump Room on December 22, 2011
- B Diesel Generator and Essential Switchgear on December 23, 2011

1R06 Flood Protection Measures (71111.06 – 1 sample)

.1 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground cable vaults subject to flooding that contain cables whose failure could disable risk-significant equipment. The inspectors observed inspections of risk-significant areas, including vaults W06, W11 and W12 containing medium and low voltage cables for the service water and circulating water systems, to verify whether the cables were submerged in water, that cables appeared intact, and to observe the condition of cable support structures. The inspectors also reviewed NextEra's process to periodically dewater the vaults. The inspectors reviewed the actions by NextEra to address identified deficiencies in the corrective action program.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

.1 Quarterly Review by Resident Staff (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed licensed operator simulator training on November 15, 2011, which included a reactor coolant leak coincident with a loss of power and the failure of select components to automatically start as required. 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 emergency plan actions by the shift manager and the technical specification action statements entered by licensed personnel. 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 Biennial Review by Regional Specialist (71111.11B – 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, Inspection Procedure Attachment 71111.11, “Licensed Operator Requalification Program,” Appendix A “Checklist for Evaluating Facility Testing Material” and Appendix B “Suggested Interview Topics.”

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports, NextEra’s corrective action program, and the most recent NRC plant issues matrix (PIM). The inspectors also reviewed specific events from NextEra’s corrective action program, which indicated possible training deficiencies, to verify that they had been appropriately addressed. The resident inspector was also consulted for insights regarding licensed operators’ performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The operating tests for the weeks of December 5 and 12, 2011, were reviewed for content and quality. Likewise, the written examinations for the weeks of November 21 and December 5, 2011, were reviewed for content and quality.

On December 29, 2011, the results of the annual operating tests for year 2011 and the written exam for 2011 were reviewed to determine if pass fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, “Operator Requalification Human Performance Significance Determination Process (SDP).” The review verified the following:

- Crew pass rates were greater than 80 percent (Pass rate was 90.9 percent)
- Individual pass rates on the dynamic simulator test were greater than 80 percent (Pass rate was 90.7 percent)
- Individual pass rates on the job performance measures of the operating exam were greater than 80 percent (Pass rate was 98.1 percent)
- Individual pass rates on the written exam were greater than 80 percent (Pass rate was 98.1 percent)
- More than 75 percent of the individuals passed all portions of the exam (87.0 percent of the individuals passed all portions of the examination)

Observations were made of the dynamic simulator exams and job performance measures (JPM) administered during the week of December 5, 2011 for the “D” Operations and Staff crews. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of five JPMs.

The remediation plans for several crew and individual performance deficiencies and quiz failures were reviewed to assess the effectiveness of the remedial training.

Two reactor operators and ten senior reactor operator license activations were reviewed to ensure that 10 CFR 55.53 license conditions and applicable program requirements were met.

Operators, instructors and training/operation's management were interviewed for feedback on their training program and the quality of training.

Simulator performance and fidelity were reviewed for conformance to the reference plant control room.

A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance with license conditions, including NRC regulations.

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 SSC performance and reliability. The inspectors reviewed system health reports, maintenance backlogs, and MR basis documents to ensure that NextEra was identifying and properly evaluating performance problems within the scope of the maintenance rule. As applicable, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by NextEra staff was reasonable; for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2); and, the inspectors independently verified that appropriate work practices were followed for the SSCs reviewed. Additionally, the inspectors ensured that NextEra staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- MR (a)(3) periodic evaluation for November 2009 through April 2011
- Reactor coolant system with a focus on incore seal table pressure boundary performance
- Safety related 480 volt electrical distributions system performance with a focus on motor control center MCC-614 breaker maintenance

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that NextEra performed

the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance. As applicable for each activity, the inspectors verified that NextEra personnel performed risk assessments as required by 10 CFR 60.65(a)(4) and applicable station procedures, 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 to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Planned work associated with switchyard maintenance for breaker 163 and removal of de-commissioned breakers 169 and 692 combined with a battery capacity test on vital battery 1-EDE-BC-1B which required DC Bus 11A cross tie with 11C on October 4–5, 2011 (WO P0000386, 624445, 40063769)
- Planned work associated with an operational test of the power range nuclear instrumentation channel N42 on November 23, 2011 (WO 40084465)
- Planned work associated with the electrical distribution system including the 345KV switchyard, 125 vdc vital battery and the 4160 volt emergency bus power supply on October 7-8, 2011 (WO 40103639)

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 3 samples)

a. Inspection Scope

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

- AR1691351, operability determination of spent fuel pool following new criticality analysis on October 5, 2011
- AR1667857, operability of the service water system with Plastisol liner material delamination on October 16, 2011
- AR1695587, operability of the service water (SW) system due to thru wall leak on SW ocean pump 1-SW-P-41D discharge constant vent on October 12, 2011

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 technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications 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 assumptions in the evaluations.

b. Findings

Section 4OA7 discusses a NextEra identified finding regarding design controls and inspections of service water pipe liner materials.

1R18 Plant Modifications (71111.18 – 1 sample)

.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.

- Encapsulation of safety injection system check valve SI-V82 implemented by engineering change EC273936

b. Findings

No findings were identified.

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

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.

- Reactor digital rod position indication maintenance per WO 40117603 on October 26, 2011
- Service water system motor control center MCC-614 electrical supply maintenance per WO 40118926 on November 2, 2011
- B emergency diesel generator (EDG) lube oil maintenance per WO 40098644 on December 7, 2011
- A EDG maintenance per WO 40088252 from December 12 to 18, 2011
- Fire Protection Diesel Pump FP-P-20B maintenance per WO 40086691on December 8, 2001

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk management for the Seabrook forced outage (FO#2) conducted on October 6-30, 2011. The inspectors reviewed NextEra's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the cooldown process and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications
- Fatigue management, including appropriate use of waivers, fatigue assessments and self-declarations
- Reactor start-up and plant heat-up activities
- Identification and resolution of problems related to refueling outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 3 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, 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:

- OX1456.49, Emergency Feedwater Pump P37B and Slave Relay K615 actuation logic testing on November 20, 2011
- MX0516.07, Control Building Air Handling Filter CBA-F-8038 Charcoal Testing on December 1, 2011
- OX1413.03, B Train RHR Quarterly Flow and Valve Stroke Test and 18 Month Valve Stroke Observation on December 1, 2011

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02 - 1 sample)

a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of the Seabrook Station Alert and Notification System (ANS). During this inspection, the inspectors interviewed EP staff responsible for implementation of the ANS testing and maintenance, and reviewed Action Requests (AR) pertaining to the ANS for causes, trends, and corrective actions. The inspectors reviewed the ANS station procedures and the Federal Emergency Management Agency (FEMA)-approved ANS design report to ensure Next Era's compliance with design report commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 02. Planning Standard, Title 10 of the *Code of Federal Regulations* (10 CFR) 50.47(b) (5) and the related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03-1 sample)

a. Inspection Scope

The inspectors conducted a review of Seabrook's Emergency Response Organization (ERO) augmentation staffing requirements and the process for notifying and augmenting the ERO. This was performed to ensure the readiness of key NextEra staff to respond to an emergency event and to ensure Next Era's ability to activate their emergency facilities in a timely manner. The inspectors reviewed: the Seabrook ERO roster; training records; applicable procedures; drill reports for augmentation; quarterly EP drill reports; and ARs related to the ERO staffing augmentation system. The inspection was

conducted in accordance with NRC Inspection Procedure 71114, Attachment 03. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR Part 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

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

a. Inspection Scope

Since the last NRC inspection of this program area, in May 2010, Next Era had implemented various revisions of the different sections of the Seabrook Station Radiological Emergency Plan. Next Era had determined that, in accordance with 10 CFR 50.54(q), any change made to the Plan, and its lower-tier implementing procedures, had not resulted in any decrease in effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed all Emergency Action Level (EAL) changes that had been made since May 2010, and conducted a sampling review of other Emergency Plan changes, including the changes to lower-tier emergency plan implementing procedures and EP-related equipment, to evaluate for any potential decreases in effectiveness of the Emergency Plan. However, this review was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 - 1 sample)

a. Inspection Scope

The inspectors reviewed a sampling of self-assessment procedures and reports to assess Next Era's ability to evaluate their Seabrook Station EP performance and programs. The inspectors reviewed a sampling of ARs from January 2010 through November 2011, initiated by NextEra at Seabrook from drills, self-assessments and audits, as well as from the March 28, 2011, declaration of an Unusual Event due to smoke coming from an electrical component in the Primary Auxiliary Building. Additionally, the inspectors reviewed Quality Assurance audits, including 10 CFR 50.54(t) audits, and several self-assessment reports. This inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05. Planning Standard, 10 CFR 50.47(b) (14) and the related requirements of 10 CFR Part 50 Appendix E were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on November 15, 2011, which required emergency plan implementation by an operations crew. The inspectors observed emergency response operations in the simulator to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also reviewed the drill critique to compare inspector observations with those identified by NextEra staff in order to evaluate NextEra's critique and to verify whether the NextEra staff was properly identifying weaknesses and entering them into the corrective action program.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS05 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

a. Inspection Scope

During the period December 5 - 8, 2011, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation used to detect and quantify radioactive effluent releases. Implementation of these programs was reviewed against the criteria contained in 10 CFR Part 20, the Off-site Dose Calculation Manual (ODCM), applicable industry standards, and the licensee's procedures.

ODCM, UFSAR Review

The inspectors reviewed the changes made to the ODCM to determine if the changes were technically justified and affected NextEra's ability to maintain effluent releases as low as is reasonably achievable (ALARA).

The inspectors reviewed the current revision of the site's Updated Final Safety Analysis Report (UFSAR) related to radioactive effluent treatment and monitoring systems to determine if any changes were made in system configurations or components.

Walkdown of Effluent Monitoring Systems

The inspectors walked down selected portions of liquid and gaseous effluent monitoring systems to assess material condition and verify system operability. The walkdown of liquid radiation monitors included the turbine building sump monitor (RM-6521), the storm drain radiation monitor (RM-6454), and the liquid radwaste radiation monitor (RM-6509). Gaseous effluent monitors walked down included the condenser air removal (RM-6505) and the plant vent wide range gas monitor (RM-6528).

The inspectors reviewed the most current liquid and gaseous effluent monitor functional test results and calibration records to verify that the associated isolation functions and alarms were operable. The inspectors evaluated the effluent radiation monitor set-points calculation for agreement with the prescribed ODCM methodology.

The inspectors reviewed the most current System Health reports for the process radiation monitoring systems and discussed the system status with the cognizant system engineer.

Laboratory Instrumentation

The inspectors reviewed the calibration records, daily source checks and maintenance records for the gamma spectroscopy systems (Detectors Nos 1, 2, 3, 4, & 5) and beta scintillation counters (Perkin Elmer TR Models 2700 and 2900) to verify that the instruments were calibrated and properly maintained. The inspectors determined that the calibration and check sources were representative of the radioisotopes found in the plant's source term.

b. Findings

No findings were identified.

2RS06 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 1 sample)

a. Inspection Scope

During the period December 5 - 8, 2011, the inspectors conducted the following activities to verify that NextEra was properly maintaining the gaseous and liquid processing systems to ensure that radiological releases were properly mitigated, monitored, and evaluated with respect to public exposure. Implementation of these controls was reviewed against the criteria contained in the 10 CFR Parts 20 and 50, Technical Specifications, the ODCM and NextEra's procedures.

Effluent Report, ODCM, UFSAR Reviews

The inspectors reviewed the 2009 and 2010 Annual Radioactive Effluent Release Reports to verify that the effluent programs were implemented as required by the Off-site Dose Calculation Manual (ODCM). As part of this review, changes made to the ODCM were evaluated to determine if the changes affected the licensee's ability to maintain effluent doses ALARA.

The inspectors reviewed the current revision of the site UFSAR related to radioactive effluent treatment and monitoring systems to determine if any changes were made to system configurations or components.

Groundwater Protection Initiative (GPI) Program

The inspectors reviewed groundwater monitoring results for 2011 and discussed program status with the GPI project manager. The inspectors determined that no significant trends were identified in tritium concentrations nor were new potential sources

identified. No tritium concentrations above the licensee's voluntary Ground Protection Program trigger levels were noted.

Walkdown and Observations

The inspectors walked down the major components of the gaseous and liquid effluent monitoring systems to verify that the system configuration complied with the UFSAR description, and to evaluate equipment material condition. Radiation monitors inspected included the following:

Liquid Monitors:
- RM-6521, Turbine Building Sump
- RM-6454, Storm Drain Radiation
- RM-6509, Liquid Radwaste

Gas Monitors:
- RM-6505, Condenser Air Removal
- RM-6528, Plant Vent (Wide Range Gas Monitor)

The inspectors reviewed the associated procedures and observed technicians collecting weekly air particulate, iodine and noble gas grab samples from the plant vent effluent radiation monitor and obtain a noble gas sample from the condenser air removal system. The inspectors also observed a technician taking a liquid sample from the storm drain system and had a briefing on how samples were obtained from the waste test tanks.

The inspectors reviewed the most current liquid and gaseous effluent monitor calibration results to verify that the instrumentation met the operability acceptance criteria, and associated flow instruments and isolation valves were operable. Liquid monitor calibration data reviewed included the Waste Test Tank (WTT) Discharge Flow isolation valves (1WL-FCV-1458-1/2), WTT radiation monitor (RM-6509), Storm Drain monitor (RM-6454), and the Turbine Building Sump radiation monitor (RM-6521). Gaseous effluent instrumentation reviewed included the Plant Vent radiation monitor (RM-6528), and condenser air evacuator (RM-6505).

Air Cleaning Systems

The inspectors reviewed the air cleaning system surveillance test results for High Efficiency Particulate Air (HEPA) filters and charcoal absorber filtration systems, to ensure the components met their acceptance criteria. The inspectors confirmed that the air flow rates were consistent with the ODCM values. Systems reviewed included the containment air purge (CAP/COP), spent fuel air handling (FAH), primary auxiliary air handling (PAH) and emergency air handling (EAH). The inspectors confirmed that efficiency of the HEPA filters and charcoal absorbers were within required acceptance criteria and the air flow rates were consistent with the various fan configurations in the UFSAR. The inspectors reviewed the most current System Health reports for the radioactive air handling treatment systems and discussed the system status with system engineers.

Test data reviewed included the containment recirculation filtration (1-CAH-F-8), containment air purge filtration (1-CAP-F-40), primary auxiliary building exhaust ventilation filtration (1-PAB-F-16), and fuel storage building cleanup filtration (1-FAH-F-41).

Dose Calculations

The inspectors reviewed liquid and gaseous effluent monthly, quarterly, and annual dose calculations for 2011 to ensure that the licensee properly calculated the offsite dose from effluent releases, in accordance with the ODCM, and to determine if any performance indicators (criteria contained in Appendix I of 10 CFR Part 50) were exceeded. None of the performance indicators for the Public Radiation Safety Cornerstone were exceeded.

The inspectors reviewed three (3) liquid waste and three (3) gaseous waste discharge permits to verify that the projected doses were properly calculated using representative samples from the associated waste stream.

The inspectors verified that the radiological liquid and gaseous effluent dose calculation software, used for the generation of discharge permits, was included in the corporate validation and verification (V&V) program, to ensure that the software currently in use provides accurate dose projections. The inspectors reviewed, and discussed with NextEra, the V&V results for the spreadsheets that calculate offsite doses to the public.

Sampling and Analysis

The inspectors reviewed selected liquid and gas discharge permits for recent releases. The inspectors confirmed that, prior to any batch release, effluent samples were taken and analyzed, off-site doses were calculated, and the associated radiation monitor alarm set-points were appropriate to mitigate an off normal discharge. The inspectors confirmed that hard-to-detect radioisotopes, identified in 10 CFR Part 61 analyses, were accounted for in preparing the discharge permits.

The inspectors reviewed the daily quality control records for the counting room gamma spectroscopy and scintillation counting instrumentation to determine if the required lower limits of detection (LLD) were achievable and that effluent samples were adequately quantified and evaluated. The inspectors reviewed the results of NextEra's inter-laboratory cross check program to verify the quality and accuracy of effluent sample analysis performed by NextEra.

Problem Identification and Resolution

The inspectors reviewed relevant documentation (i.e., condition reports, nuclear assurance daily quality summary reports, quarterly radiation monitoring system health reports, and a nuclear quality assurance audits) to evaluate NextEra's threshold for identifying, evaluating, and resolving problems in implementing the Radiological Effluents Technical Specification (RETS)/ODCM. This review was conducted against the criteria contained in 10 CFR Parts 20 and 50, the ODCM, and NextEra's procedures.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (1 sample)

a. Inspection Scope

The inspectors sampled NextEra's submittals for the Safety System Functional Failures performance indicator for the period of April 1, 2010 through June 30, 2011. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed NextEra's licensee event reports (LER) to validate the accuracy of the submittals. The inspectors also reviewed the accuracy of the number of critical hours reported.

b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspector reviewed implementation of NextEra's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program. Specifically, the inspector reviewed condition reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators. This inspection activity represents the completion of one (1) sample relative to this inspection area; completing the annual inspection requirement.

b. Findings

No findings were identified.

.3 Emergency Preparedness Cornerstone (3 samples)

a. Inspection Scope

The inspectors reviewed data for the Seabrook EP Performance Indicators (PI), which are: (1) Drill and Exercise Performance (DEP); (2) ERO Drill Participation; and, (3) ANS Reliability. The last NRC EP inspection at Seabrook was conducted in the second quarter of 2010, so the inspectors reviewed supporting documentation from EP drills, training records, and equipment tests from the second calendar quarter of 2010 through the third quarter of 2011, to verify the accuracy of the reported PI data. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151, using the acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 6.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 5 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 corrective action program 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 corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

As specified by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors performed a semi-annual review of site issues to identify trends that might indicate the existence of more significant safety issues. The inspection included a review of repetitive or closely-related issues documented by NextEra outside of the corrective action program, such as assessment reports, trend reports, performance indicators, major equipment problem lists, system health reports, and maintenance or corrective action program backlogs. The inspectors reviewed the Seabrook corrective action program database for 2011, to assess CRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed the trend reports by the operations, security, engineering and maintenance departments, together with the 2010 and 2011 quarterly trend reports to verify that NextEra was appropriately evaluating and trending adverse conditions in accordance with procedure PI-AA-207, "Trend Coding and Analysis."

b. Findings and Observations

No findings were identified.

The inspectors did not identify any trends that NextEra had not identified. The inspectors reviewed a sample of issues and events that occurred over the past four quarters that were documented in the corrective action program. The inspectors reviewed a sample of department trend reports that are provided along with the quarterly

trend reports. The inspectors verified that NextEra appropriately considered identified issues as emerging trends, and in some cases, verified the adequacy of the actions completed or planned to address the identified trends.

NextEra continued to focus on an adverse trend related to human performance. NextEra completed a common cause evaluation for the trend in human performance in Operations (CR594198) that noted some improvements, but also noted that additional attention was required (CR1679163 and 1694505). Recent occurrences that involved human performance included a worker entering the radiological control area using the incorrect radiation work permit task (CR1698760), the incorrect use of a breaker tool causing damage to a 480 volt motor control center (CR 1701944), and operator inattentiveness (CR 1713612). Another example included incorrectly restoring a condensate pump to service following maintenance resulting in a reactor trip (CR 1693814). Section 4OA3 of this report describes human performance regarding the reactor trip. NextEra corrective actions focused on operator mentoring and fundamentals in the operator training program. NextEra continues to address human performance site wide through procedure enhancements, management observations and a focus on procedure compliance in continuing training sessions.

NextEra continued to focus on an adverse trend related to equipment performance and reliability. Performance problems with secondary plant equipment challenged operators and stable plant operations, resulting in the need to shutdown (CR1698710) or reduce plant power (CR 1717193) in the 4th quarter as reflected in an adverse trend in the NRC Performance indicator for Unplanned Power changes. Recent equipment issues that impacted safety system performance or availability included inadequate supports on emergency diesel generator fuel oil lines (CR1710481) and emergency diesel generator heat exchanger fouling and flow blockage (CR 1694951). NextEra self-assessments have been effective to identify the need for additional actions to address service water system performance (CR1637922) and service water piping liner degradation (CR1694951). NextEra continues to use the preventive maintenance optimization process and the plant health committee reviews of system health reports to focus on equipment issues. NextEra is also considering methods to improve the effectiveness of the plant health review process.

The negative trend in equipment performance also indicated the need to improve the quality of Seabrook engineering evaluations because opportunities to identify the problems with EDG fuel lines and heat exchange fouling during engineering assessments and system walkdowns were missed. Other examples that support the existence of an adverse trend in the quality of engineering assessments include the incorrect scoping of risk significant structures into the maintenance rule monitoring program (CR1629504) and the incorrect evaluation of degraded structure conditions per 10CFR 50.59 (CR 1664074).

NextEra identified a need to focus on an adverse trend related to the identification and correction of conditions adverse to quality. Examples of problems in the area of corrective action effectiveness included the failure to identify and classify degraded plant structures under the Maintenance Rule 10 CFR 50.65(a)(1) and then establish corrective actions (CR 1636419); untimely evaluation of degraded conditions in plant structures (CR 1664399); and, inadequate evaluation for operability degraded conditions associated with the emergency diesel generators (CR 1664708), the fire protection system (CR 1668219), and the plant structures (CR 1692374). The issues involved

further examples of problems with the quality of engineering evaluations as discussed above under equipment reliability. NextEra entered this issue into the corrective action program for further review (CR 1707961) and initiated a root cause evaluation to identify the causal factors related to the effectiveness of corrective actions.

.3 Annual Sample: Emergency Power Sequencer Failure

a. Inspection Scope

The inspectors performed an in-depth review of NextEra's root cause analysis and corrective actions associated with condition report 1645405, reset of the 'A' train Emergency Power Sequencer (EPS). Specifically, on April 26, 2011, while performing the '1A' emergency diesel generator 18 month surveillance, the 'A' train EPS reset at the step five timing interval and did not complete the timing sequence.

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

b. Findings and Observations

No findings were identified.

NextEra determined the root cause of this event was a failure to maintain adequate cable separation. Specifically, a design change in 2000 to the Control Building Air (CBA) system resulted in a control circuit cable being routed adjacent to EPS logic wiring. This routing resulted in an electromagnetic coupling effect that induced a transient voltage onto the EPS logic circuit.

NextEra conducted a thorough root cause evaluation of the EPS failure, including a comprehensive failure analysis. NextEra took corrective actions to install a metal oxide varistor into the CBA circuit to prevent voltage transients. NextEra also took corrective actions to train engineers about internal cable separation requirements, and to perform a detailed review of wiring in the 'A' train EPS cabinet. As part of NextEra's extent of condition review, the 'B' train EPS wiring was inspected and although the 'B' train wiring was found to be far less susceptible to the electromagnetic coupling, a metal oxide varistor was also added to the 'B' train CBA circuit. NextEra also performed a detailed extent of cause review to verify that no other modifications at Seabrook had installed wiring without adequate separation. No other examples of modifications causing cable separation issues were found by NextEra's review.

The inspectors reviewed the troubleshooting records, root cause evaluation, and metal oxide varistor plant modifications and did not identify any additional issues. The inspectors determined NextEra's overall response to the issue was commensurate with

the safety significance, was timely, and included appropriate compensatory actions. The inspectors determined that the actions taken were reasonable to resolve the EPS reset issue.

.4 Annual Sample: Service Water System Performance

a. Inspection Scope

A PI&R sample inspection was conducted during the period December 12 thru 16, 2011 for the service water system (SW) in which the internal coating was degrading and causing corrosion from the inside out Action Request (AR) 1637922. The purpose of this inspection was to select and assess the problem identification, resolution and corrective actions taken by NextEra to characterize, correct and prevent reoccurrence of potential problems that could impact cornerstone objectives. NextEra performed a root cause evaluation (RCE) to address the SW problems.

The inspector evaluated the threshold for problem identification, the adequacy of cause analysis, extent of condition review, SW operability and reportability determinations and timeliness and effectiveness of corrective actions. In addition, the inspector reviewed the system health reports for the SW system covering selected periods encompassing the previous three years to determine if the reports reflected a change of Maintenance Rule Category from a(2) to a(1) as the SW system required increasing attention or surveillance due to identification of wall thinning or leakage.

Additional ARs and Condition Reports (CRs) that were initiated and identified as applicable to the degradation of the SW system were also reviewed by the inspector. The additional reviews were performed to bound the extent of leakage and wall thinning due to loss of the protective liner which exposed the susceptible carbon steel pipe to the aggressive erosion/corrosion attack by sea water. The inspector reviewed repair and test procedures used to restore the SW system to operable status.

The documents reviewed are listed in the Attachment to this report. Also, the inspector interviewed RCE team members including the team leader, systems engineer and the qualified non-destructive test examiner (for ultrasonic and remote visual testing). Test results of thinned locations including leaks were reviewed to assess the adequacy of remaining wall thickness for continued operation. Also, existing pipe wall thicknesses were needed to formulate test plan frequency and objectives for long range monitoring of susceptible locations.

b. Findings and Observations

No findings were identified. The root cause evaluation and corrective actions were reasonable and appropriate. Based on a review of the system health reports for the SW system, the inspector noted that system health reports reflect a change of Maintenance Rule Category from a(2) to a(1) as the SW system required increased attention due to instances of wall thinning and leakage. The problem was considered a significant condition adverse to quality.

A RCE was performed by NextEra to address a long history of SW degradation (corrosion/erosion) resulting in wall thinning and pressure boundary penetration and

leakage. The area of wall thinning has been associated with locations where there has been loss of protective coating and/or liner failure.

The root cause team concluded that the cause of failure of the SW system was a lack of a process that requires the ongoing assessment of all material condition data. This lack of assessment resulted in an inadequate maintenance strategy for SW piping. Repairs to the SW piping were not trended or analyzed in the aggregate to determine specific causes or to make changes to the maintenance strategy.

The system locations examined by NextEra were selected based on the service history and experience that failures in fluid systems predominantly occur at locations of configuration change and field welds of piping and fittings. These locations were identified through visual examination (interior remote camera) in addition to ultrasonic examination from the outside diameter. Failure analysis of known leaks revealed that base metal failure was more pronounced at butt welds of pipe to pipe and pipe to fittings (elbows, tees, reducers, expanders) and attachment welds which caused disruptive flow patterns and more vigorous attack (turbulence) of the adhesive bond of liner to base metal which had the consequence of rapid erosion/corrosion of the exposed carbon steel base metal. The inspector examined several portions of failed (leaking) SW piping and fittings that had been removed from the system in previous outages. The removed samples provided ample evidence of corrosive/erosive attack from turbulent flow at field welds and configuration change (fitting intersections). Examination using ultrasonic testing (UT) was performed at selected locations with known change in flow patterns and velocity changes. The results of this testing identified these areas as exhibiting wear and resultant wall thinning.

The inspector verified the following completed corrective actions:

1. Development of a process that requires post outage assessment of “red” or “yellow” material condition.
2. Development of a Service Water maintenance strategy for refuel outage OR 15 (2012).
3. Evaluation of the material condition for the circulating water and screen wash systems to determine if changes to the maintenance strategies are warranted.

The inspector noted that the long term resolution to this problem by NextEra included plans to develop an inspection process and inspection plan that will require post outage assessment of susceptible material and, will include all material condition data. Also, this process shall include re-evaluation of the maintenance strategy to determine if changes are warranted, including pipe replacement. An effectiveness review is planned to verify that the corrective actions specified were implemented as written. The inspector noted that the longer term resolution of the problem would be accomplished with the guidance provided in Plant Engineering Guideline (PEG-94), Service Water Inspection and Repair Trending. The guidance provided in PEG-94 addresses the inspection program and trending of leaks, piping repairs, and longer term piping replacements for SW.

.5 Annual Sample: Scoping Structures into the Maintenance Rule

a. Inspection Scope

A Problem Identification and Resolution (PI&R) sample inspection was conducted during the period November 28 to December 1, 2011, to assess NextEra's review of and corrective action for a non-cited violation of 10 CFR) 50.65(b). In March, 2011, an NRC inspection determined NextEra had incorrectly excluded the Intake and Discharge Structures from the scope of the Maintenance Rule (MR) program. The area was being reviewed since there was some evidence of distress in the concrete due to an alkali-silica reaction problem. In response, NextEra entered the issue into the corrective action program as a condition adverse to quality and completed an apparent cause evaluation. The inspector performed a focused review of NextEra's apparent cause analysis and corrective actions associated with Condition Report 1629504.

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

b. Findings

No findings were identified. The apparent cause evaluation, extent of condition review, and corrective actions were reasonable and appropriate. The issue was classified as a condition adverse to quality.

NextEra completed an assessment of the intake and discharge structures per NAP-415, MR Scoping Document, and determined the structures should have been in the scope of the MR program. NextEra determined the apparent cause of this event was an error in the initial scoping evaluation which excluded the intake and discharge structures with a lack of adequate documentation to explain the basis for the exclusion. NextEra also determined that once the original MR program scoping evaluation was validated, there was no process driven actions to re-validate the initial program scoping decisions and there was also an apparent overreliance on a lack of inspection findings in this area.

With respect to corrective actions, NextEra conducted a detailed evaluation of the discrepancy in the MR Basis Document in response to the AR 1629504. The inspector reviewed the MR Database to determine if scoping basis documentation is required for those structures excluded from the MR Program scope. Of the 23 structures documented in the MR Program, five were scoped out with a minimal basis but confirmed to be appropriately not within the scope of the maintenance rule. A longer term action was taken to improve the basis documentation.

The inspector verified that this was not a repeat event. The MR database, AR Database and MR Expert Panel meeting minutes were reviewed for previous scoping revisions due

to errors in the original scope. There were no other examples where a function was scoped out in error and then later scoped into the program.

With respect to an extent of condition review, NextEra reviewed the site structures and identified no other structures or portions of structures than needed to be scoped into the maintenance rule.

Overall, the inspectors determined NextEra's response to the issue was commensurate with the safety significance, was timely, and included appropriate corrective actions.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Plant Events (1 sample)

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that NextEra made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed NextEra's follow-up actions related to the events to assure that NextEra implemented appropriate corrective actions commensurate with their safety significance.

- Automatic reactor trip on October 6, 2011 (AR1693814)

b. Findings

Introduction. The inspectors identified a Green self-revealing finding because the reactor tripped on October 6, 2011, due to low steam generator water level. The low level was caused by a trip of the 'A' main feed pump, which resulted from cavitation in the 'A' and 'C' condensate pumps. The inspectors determined that the cavitation in the 'A' and 'C' condensate pumps occurred because technicians aligned the 'B' condensate pump for service following maintenance without first filling the 'B' pump casing and associated piping with water in accordance with the condensate system operating procedure.

Description. The reactor tripped on low steam generator level October 6 due to the loss of the 'A' main feedwater pump (MFP). The 'A' MFP tripped on low suction pressure while operators were completing step 12 of Clearance Order 1-CO-P-30B to restore the 'B' condensate pump to service following maintenance per work order WO 01383321. The 'B' condensate pump casing and associated piping within the clearance boundary were not filled with water prior to aligning the pump to the common suction header with in-service 'A' and 'C' condensate pumps. The casing vents from all three pumps are connected through a common header, which connects to the condensate pump suction header, so air vented from the 'B' pump entered the operating condensate pumps when the 'B' pump casing vent valve V57 was opened during actions to clear the maintenance tags. The in-service 'A' and 'C' condensate pumps cavitated, which caused the 'A' main

feedwater pump to automatically trip and ultimately lowering steam generator water level.

In the root cause evaluation for this event (CR1693814), NextEra determined that the lack of a specific operating procedure and the operator's lack of understanding of condensate system dynamics were causal to the event. The condensate-feedwater system flow perturbations occurred while operators were restoring the 'B' condensate pump after maintenance. The instructions in the work package and the clearance order for the maintenance tags did not provide steps for filling the pump casing and piping before re-connecting the 'B' pump to the operating condensate header. This was contrary to the requirements in Procedure ON1034.03, Condensate System Operation, Section 4.10, Flushing a Condensate Pump After Maintenance; that stated that the pump be filled as the first step following maintenance.

NextEra determined, during its evaluation of the event, that while performing the clearance removal for the 'B' pump maintenance, operators did follow the CAUTION in Section 4.10 of the system operating procedure that emphasized slow operation of the condensate pump vent valve to prevent air from entering the suction of any running condensate pumps because the clearance order itself included the direction to do so; but operators did not invoke the steps in Section 4.10 of the system operating procedure because the work package and clearance order did not provide direction to implement that section and because there was no intention to flush the 'B' condensate pump.

A review of past operating experience at Seabrook identified a similar condensate-feed water transient while returning a condensate pump to service in1994. Following that event, NextEra revised procedures (including ON1034.03) and condensate system tagout instructions to assure proper restoration of a condensate pump. In addition, NextEra identified a similar condensate pump evolution that was performed without incident in 2005 because, as a result of corrective actions from the 1994 event, the work package/clearance order included steps that filled the condensate pump and associated piping following maintenance.

In addition to the lack of specific guidance for vent and fill, another factor that complicated the pump restoration on October 6, 2011, was that the operators incorrectly believed that any air introduced into the system by the restoration of the 'B' pump would not affect operation of the 'A' and 'C' pumps because it would flow to the condenser and not the operating pumps because the condenser was under a vacuum. Each of these factors, the inadequate vent and fill of the 'B' condensate pump, and the operators' misconception regarding air released from the 'B' pump ultimately resulted in cavitation of the operating pumps, the trip of the 'A' MFP and the subsequent trip of the reactor on low steam generator water level.

As corrective action after the 2011 event, rather than relying on the use of work instructions and clearance orders to properly control the restoration of a condensate pump following maintenance, and more specifically the filling and venting of the pump casing and associated piping after maintenance, NextEra revised the condenstate system operating procedure, ON1034.03, to add a new section that specified the steps for filling, venting and flushing a condensate pump after maintenance.

Analysis. The inspectors determined that not properly venting and filling the 'B' condensate pump after maintenance on October 6, 2011, in accordance with the

requirements in the system operating procedure resulting in a loss of the 'A' main feedwater pump and a reactor trip was a performance deficiency that was within NextEra's ability to foresee and correct. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone, and it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The finding was evaluated under IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings". The inspectors determined that the finding is of very low safety significance (Green) because it does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.

The finding has a cross-cutting aspect in the area of human performance because NextEra did not ensure that adequate procedures and work packages were available (H.2.c). Specifically, neither the work package nor tagout used to restore the 'B' condensate pump to service following maintenance vented the pump casing, and as a result, air from the pump entered the condensate-feedwater train causing a reactor trip when the 'A' main feedwater pump tripped on low suction pressure. NextEra entered this issue into the corrective action program as AR1693814.
Enforcement. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. **(FIN 05000443/2011005-01, Reactor Trip Caused by Inadequate Condensate Pump Restoration)**

.2 (Closed) Licensee Event Report (LER) 05000443/2011-002-00: Automatic Reactor Trip Following Loss of Main Feedwater Pump

On October 6, 2011, NextEra returned a condensate pump to service without using a procedure to assure the pump was properly vented. As a result, the reactor automatically tripped on low steam generator level following loss of an operating main feedwater pump. The enforcement aspects of this issue are discussed in Section 4OA3.1 above. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA6 Meetings, Including Exit

On December 9, 2011, the inspectors presented the inspection results for the biennial review of operator training to Mr. E. Momm, Training Manager, and other members of licensee management.

On January 10, 2012, the inspectors presented the inspection results to Mr. T. Vehec 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.

4OA7 Licensee-Identified Violation

The following violation of very low safety significance (Green) was identified by NextEra and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design

basis, are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, NextEra did not assure that the design basis for safety-related service water piping installed per design change record 93DCR003 was correctly translated into procedures and instructions. Specifically, when implementing design change 93DCR003, NextEra did not establish a requirement in plant procedures to track the service life of the plastisol liner or establish measures during preventive maintenance activities to assure the material remained bonded to the pipe. The plastisol liner material was found delaminated and generating foreign material in the service water pipe providing cooling water to the 'B' emergency diesel generator on October 10, 2011. This was identified in the corrective action program as Condition Report 1694951 to initiate review of the service water monitoring program, revise the design change process and take other long-term corrective actions. This finding is of very low safety significance (Green) because it did not represent an actual loss of safety function or contribute to external event core damage sequences.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Anderson, Chemistry Technician
B. Bryant, Operations Work Control
B. Brown, Supervisor, Civil Engineering
V. Brown, Senior Licensing Analyst
K. Browne, Plant General Manager
M. Collins, Manager, Design Engineering.
W. Desflosses, Senior Chemistry Technician
S. Foster, License Medical Lead
M. Frink, Nuclear Oversight Assessor
A. Giotas, Chemistry Analyst
R. Gutherie, Systems Engineer, Radiation Monitoring
L. Hansen, Plant Engineering
P. Harvey, REMP Manager
J. Kennish, Operations LORT Technical Lead
J. Kotkowski, Electrical Design Supervisor
M. Leone, Operations LORT Training Supervisor
N. Levesque, Plant Engineering
B. McAllister, Plant Engineering
W. Meyer, Radiation Protection Manager
M. Nadeau, System Engineer, Control Building Air Handling
D. Norris, Instrumentation & Control Supervisor
M. O'Keefe, Licensing Manager
D. Perkins, Radiological Engineer
S. Riley, LOIT Instructor
D. Robinson, Chemistry Manager
M. Scannell, Radiation Protection Supervisor, Environmental
W. Schoppmeyer, Nuclear Oversight Assessor
G. Sessler, Plant Engineering
E. Spader, Simulator Support Instructor
R. Thurlow, Maintenance Manager
T. Vehec, Plant General Manager
J. Walsh, Supervisor, Ventilation Systems
T. Waechter, Operations Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed		
05000443/2011005-01	FIN	Reactor Trip Caused by Inadequate Condensate Pump Restoration

Opened
None

Closed

05000443/2011002-00	LER	Automatic Reactor Trip Following Loss of Main Feedwater Pump

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
OP-AA-102-1002, Seasonal Readiness, Revision 0
ON1490.06 Winter Readiness Surveillance, Revision 8
ON1490.08, Operational Status Check of Station Heating Systems, Revision 3
OS1090.09, Station Cold Weather Operations, Revision 1
OS1200.03, Severe Weather Conditions, Revision 18
NM11800, Hazardous Condition Response and Recovery Plan, Revision 24

Maintenance Orders/Work Orders
WO 40056571, 40070288

Miscellaneous
Daily Status Report
Station Operating Logs
Seasonal Readiness Review – System Engineering

Section 1R04: Equipment Alignment

Procedures
OS1035.02, Startup feed Pump Operation, Revision 10
ON1034.02, Condensate and Feedwater System Fill and Vent, Revision 15

Drawings
B20420, B20422, B20150, B20647, B20152

Section 1R05: Fire Protection

Procedures
OS0443.47, 8 Hour Emergency Lighting Units Monthly Functional Test, Revision 9
OS1200.00, Response to Fire or Fire Alarm Actuation, Revision 16
OS1200.00A, Fire Hazards Analysis for Affected Area / Zone – Appendix A

Condition Reports
AR 585852, 1718008, 1717995, 1718248, 1718260

Miscellaneous
UFSAR Section 9.5.1 Fire Protection Systems
UFSAR Section 13.2.2.9 Fire Protection Personnel
Technical Requirement 11, Fire Rated Assemblies
Technical Requirement 12, Fire Detection Instrumentation

Fire Protection Pre-fire Strategies
DBD-FP-06, Fire Rated Doors, Dampers, Conduit Wrap, & Heat Shields, Revision 2
DBD-FP-01, Appendix 'R' Emergency Lighting, Revision 2
Engineering Evaluation, SS-EV-970011, Combustible Material Storage Containers
Station Operating Logs

Section 1R06: Flood Protection Measures

Procedures
AR-AA-106, Revision 0

Condition Reports
AR 1672257

Maintenance Orders/Work Orders
WO 40091710, 40091711, 40093252

Miscellaneous
CAR-SEA-10-1258

Section 1R11: Licensed Operator Requalification Program

Procedures
Emergency Procedures E-0, ECA-0.0, ECS-0.2
OS1231.04, OS1290.02, OS1201.07
OP 9.2, Transient Response Procedure User's Guide
Simulator Demonstrative Examination #7001
NT-3736, Simulator Core Performance Testing C15 BOL Clean 5/31/2011
NT-3737, Major Plant Evolution Test: Cold Shutdown to Hot Standby 1/9/2010
NT-3743, Steady State Value Comparison Tests, 48%, 80% & 100% 11/28/2011
NT-3744, Transient 2: Simultaneous Trip of Both Main Feedwater Pumps 10/5/2011
NT-3744, Transient 4: Simultaneous Trip of All Reactor Coolant Pumps 10/18/2011
NT-3744, Transient 7: Maximum Size Unisolable Main Steamline Break 10/25/2011
NT-5701, Requalification Program Simulator Examinations
NT 5702, Administration of Requalification Program Annual Examinations
NT-7012, Licensed Operator Requalification Exam Development and Administration Safeguards and Controls
LORT 10-03 Scenario Based Test Forms 4/2011
LORT 11-03 Scenario Based Test Forms 5/2011

Miscellaneous
Demonstrative Examination #7001
Miscellaneous Test, Loss of Feedwater Plant Trip 11/28/201
Training Group LORT Training Program Description

Section 1R12: Maintenance Effectiveness

Procedures
OS1046.17, 480 Volt Unit Substation and Motor Control Center Breaker Operation, Revision 9
PEG-25, Maintenance Rule Periodic Assessment, Revision 8
PEG-72, Risk-Informed Approach to System Health, Revision 6
PEG-45, Maintenance Rule Program Monitoring Activities, Revision 11

Condition Reports
1701944
CR 2010 to 2011

Miscellaneous
System Health Reports
Maintenance Rule Performance and Scope Report
Maintenance Rule Expert Panel Meeting Minutes

Section 1R13: Maintenance Risk Assessments and Emergent Work Control
Procedures
SM 7.10, Maintenance Rule Program, Revision 1
WM 10.1, On-Line Maintenance, Revision 8
WM-AA-1000, Work Activity Risk Management Process, Revision 11
NAWM, Work Management Manual, Revision 58
PRA-301, MR(a)(4) Process for On-Line Maintenance (OLM), Revision 00

Condition Reports
AR1685798

Maintenance Orders/Work Orders
WO 40084465-01, 1-NI-NE-42-A Power Range Channel N42 Operational Test

Miscellaneous
M-Rule a(4) Risk Assessment Report for work week 1140-06
Station Operating Logs

Section 1R15: Operability Determinations and Functionality Assessments
Procedures
EN-AA-203-1001, Operability Determination / Functional Assessment, Revision 5

Condition Reports
AR1695887

Maintenance Orders/Work Orders
WO 40081959, 40115261

Miscellaneous
Calc C-S-1-45865
DBD-SW-01
EC-273214

Section 1R18: Plant Modifications
Procedures
EC273936, Post Modification Test Plan
OX1401.04, Reactor Coolant System Pressure Isolation Valve Leakage Rate Tests, Revision 1

Maintenance Orders/Work Orders
WO 40086371
PI-902563-02, PCI Energy services Weld Process Traveler, 10-11-11

Miscellaneous
EC273936, Westinghouse Seal Cap Weldment, 1-SI-V-82

Drawings
10079D26, SK-1000, 934D206, 1-SIB20446

Section 1R19: Post-Maintenance Testing
Procedures
MS0539.55, DG-A Post Maintenance Fuel Oil System Filling, Venting and Leak Testing, Revision 2
MS0539.28, EDG-A Coolant Recirculation, Draining, and Refill, Revision 5
MX0539.29, A-EDG Engine Governor Oil Change, Mechanical Overspeed Trip Adjustments, and Post Maintenance Air Rolls, Revision 6 and 6A
MX0539.59, Emergency Diesel Generator Engine Lube Oil Pump Removal and Installation, Revision 1 and 1A
MX0523.11, Fire Pump Diesel Engine Inspection and Maintenance, Revision 9
MX0523.02, Allis Chambers Fire Pump Maintenance, Revision 4
OX0443.01, Diesel Fire Pump Weekly Test, Revision 11
OS0443.74, Fire Pump Annual Test, Revision 5
OS0043.02, Diesel Fire Pump Operation, Revision 6

Condition Reports
AR 1716723, 1716727, 1716738, 1716744, 1716937, 1716939, 1716946, 1716948, 1716952, 1716727, 1716205, 1715624,

Maintenance Orders/Work Orders
WO 40117603, 40088514, 1207876, 40107432, 40115098, 40124037, 40088261, 40091576, 40088252, 40088238, 40091391
WR 94038516, 94018517, 94038514

Miscellaneous
Station Operating Logs
Cumming Diesel Engine Specification N-855-F
Engineering Change EC274901
Technical Requirement 7, Fire Suppression Water System

Drawings
FP-B20266, B20264

Section 1R20: Refueling and Other Outage Activities
Procedures
OS1000.02 Plant startup from Hot Standby to Minimum Load, Revision 20
OS1000.07, Approach to Criticality, Revision 11
OX1401.04, Form A: PM SI-OT027 – SI/RHR Cold Leg Check Valves, Revision 2
FS1735 Form A: Estimated Critical Position Data & Analysis Form, Revision 5
Maintenance Orders/Work Orders
WO 40116495

Miscellaneous
ODI.82A, Mode 4 to Mode 3 Readiness
EPRI Water Chemistry Guidelines Recirculating Steam Generators

Section 1R22: Surveillance Testing
Procedures
OX1413.03, B Train RHR Quarterly Flow and Valve Stroke Test and 18 Month Valve Stoke Observation, Revision 10
OX1456.86, Operability Testing of IST Pumps, Revision 4

Maintenance Orders/Work Orders
WO 40117603, 40083875, 40087132, 40085427, 40085734

Miscellaneous
Technical Specification - various
Plant Engineering Action Plan Register –
Station Operating Logs

Section 1EP2: Alert and Notification System Evaluation
Miscellaneous
Seabrook Station Public Alert and Notification System, FEMA-REP-10 Design Report, Addendum 6 (dated December 2003)
FPL Energy Letter to FEMA Region I, re Seabrook Siren Upgrade Project (dated July 25, 2007)
Seabrook Station Radiological Emergency Plan, Appendix E, Seabrook Station Alert and Notification System (Revision 59)
Seabrook Station Public Alert and Notification System Description (Revision 2)
Seabrook Station Siren/Radio Instruction SIR.10, WS-3000 and WPS-4000 Siren Bi-Weekly Functional Test (Revision 02)
Seabrook Station Siren/Radio Instruction SIR.11, WS-3000 and WPS-4000 Siren Front Panel Upgrade Annual Maintenance (Revision 01)
Seabrook Station Siren/Radio Procedure SIR.45, State Siren Activation Control System Annual Maintenance and Testing (Revision 02)
Seabrook Station Siren/Radio Procedure SIR.76, Local Town Siren Activation Control System Annual Maintenance and Testing (Revision 02)
Seabrook Station Siren Operability Test Results, January 2009- November 2011
Seabrook Station Siren Maintenance Work Orders for January 2009- November 2011

Section 1EP3: Emergency Response Organization Staffing and Augmentation System
Miscellaneous
Seabrook Station Radiological Emergency Plan, Section 8.0, Organization (Revision 56)
Seabrook Station Radiological Emergency Plan, Section 9.0, Emergency Response (Revision 59)
Seabrook Station Radiological Emergency Plan, Section 12.0, Maintaining Emergency Preparedness (Revision 59)
Seabrook Station Radiological Emergency Plan, Appendix A, Emergency Response Organization Position Definitions (Revision 59)
Seabrook Emergency Preparedness Department Procedure EPDP-11, Emergency Response Organization (ERO) Maintenance Program (Revision 12

Seabrook Station Administrative Procedure NM-11700, Emergency Preparedness Responsibilities of Primary, Subject-to-Call, and Secondary Emergency Response Organization Members (Revision 32)
Training Group, Emergency Response Organization (ERO) Emergency Preparedness Training Program Description (dated November 29, 2011)
Seabrook Station Quarterly ERO Notification Test Results, 4th Quarter 2009 through 3rd Quarter 2011

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Miscellaneous

Seabrook Station Radiological Emergency Plan (Revision 59)
Seabrook Station Emergency Response Manual (Revision 120)
Seabrook Emergency Preparedness Department Procedure EPDP-02, Control of Emergency Preparedness Program Changes (Revision 21)
Seabrook Station 10 CFR 50.59 Resource Manual (Revision 15)
EP-AA-100, FPL/NextEra Energy Nuclear Division Emergency Preparedness Program (Revision 1)
EP-AA-100-1000, Conduct of Emergency Preparedness (Revision 3)
EP-AA-100-1001, Guidelines for Maintaining Emergency Preparedness (Revision 2)
Change Review Committee 10 CFR 50.54(q) Change Package Nos.: 2036, 2037, 2038. 2040, 2041, 2043, 2044, 2045, 2046, 2047, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2064, and 2065

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Miscellaneous

Emergency Preparedness Functional Area 50.54(t) Audit, SBK-10-027 (July 6 - 29, 2010)
Emergency Preparedness Functional Area 50.54(t) Audit, SBK-11-010 (June 20 – July 28, 2011)
Emergency Preparedness – Accident Instrumentation Audit, SBK-11-030
March 28, 2011, Unusual Event Self Assessment
All Emergency Preparedness Quarterly Drill Reports, July 2010 – November 2011
Emergency Preparedness-related Action Requests: 222722, 223335, 393055, 395172, 568569, 569609, 580021, 596711, 1599673, 1607591, 1636337, 1666201, 1684780, 1686518, and 1686738

Section 1EP6: Drill Evaluation

Procedures

ER 1.1, Classification of Emergencies
DE-7001, 11/15/11

Section 2RS05: Radiation Monitoring Instrumentation
Section 2RS06: Radioactive Gaseous and Liquid Effluent Treatment and
Section 40A1: Performance Indicator Verification

Procedures

CP 3.2, Secondary Chemistry Controls Program, Revision 35
CP 3.3, Misc System Closed Cooling Water Surveillances, Revision 21
CP 4.1, Effluent Surveillance Program, Revision 23
CS0908.01, Off-Site Dose Assessment, Revision 14
CS0917.02, Gaseous Effluent Releases, Revision 12
CS0917.03, Unmonitored Plant Releases, Revision 09

CS0917.04, Monitoring Plant Systems for Radioactivity, Revision 03
CS0910.10, Wide Range Gas Monitor Sampling, Revision 16
CS0918.02, 10CFR Part 50 & 61 Sample Analysis Methods, Revision 07
CX0917.01, Liquid Effluent Releases, Revision 18
CP 8.1, Verification of Analytical Systems Performance, Revision 22
CP 10.1, Radiological Environmental Surveillance and QA Program, Revision 0
CD0904.11, Split and Cross Check Analysis, Revision 05
IX1660.815, Condenser Air Evacuators Discharge Radiation Monitor Calibration, Revision 01
IX1660.816, Waste Liquid Test Tanks Discharge Radiation Monitor Calibration, Revision 06
IX1660.826, Turbine Building Sump Pump Discharge Radiation Monitor Calibration, Revision 05
IX1660.814, Waste Gas Compressors Discharge Radiation Monitor Calibration, Revision 06
IX1660.730, Plant Vent Wide Range Gas Radiation Monitor Calibration, Revision05
IN1660.992, Storm Drain Sample Line, Revision 02
CS0908.02, RDMS Setpoints, Revision 09
CS0910.16, Storm Drain Radiation Monitor Surveillance and Maintenance, Revision 04
CS0910.23, Condenser Air Removal and Steam Packing Exhaust Sampling, Revision 02
CS0910.07, Spent Fuel Pool Sampling, Revision 07
CS0911.06, Miscellaneous Secondary System Sampling, Revision 10

Condition Reports/Action Requests
593457, 593473, 593479, 01678178, 01678178, 00574599, 01634664, 01682615, 01676424, 01677079, 01636421, 01639705, 01639813, 01662542, 01682707, 01697127, 01699156, 01710912, 01642178, 01639727, 01641524, 01651584, 01702723, 01704554, 017045560, 1641524

Reports Reviewed:
2009 SB Radioactive Effluent Release Report
2010 SB Radioactive Effluent Release Report and addendum issue October 14, 2011

Self-Assessment
SBK-10-040 Nuclear Oversight Report Chemistry Control Program and Effluent Program

Gas and Liquid Effluent Waste Permits
LEW Permit 11- 566, B Waste Test Tank
LEW Permit 11- 451, Turbine Building Sump
LEW Permit 11- 362, Steam Generator Blowdown Flash Tank
GEW Permit 11- 657, Letdown Stream (degassing)
GEW Permit 11- 585, Containment Purge
GEW Permit 11- 106, Continuous Plant Vent Releases
GEW Permit 11- 350, Plant Vent

HEPA Filter and Charcoal Absorber Tests
WO 01195751 01, CAP-F-40 Containment Purge Charcoal Test
WO 40045424 01, EAH-F-69 Containment Evacuation Emergency Exhaust Charcoal Test
WO 40040351 01, PAH-F-16 Primary Auxiliary Building Air Cleaning Filter Test
WO 01206456 01, Fuel Storage Building Cleanup Charcoal Test
Flow Calibration Records
WO 01173692, F-1458-1 Waste Distillate Flow to Circ Waste Intake Structure Calibration
WO 01186199, F-6577 Plant Vent Stack Flow Transmitter Calibration
WO 40064003, F-1458-1 Waste Distillate Flow to Circ Waste Intake Structure Calibration

WO 40071640, F-6577 Plant Vent Stack Flow Transmitter Calibration

Effluent Rad Monitor Calibration Records
WO 01185654 01 R-6528 Plant Vent Wide Range Gas Radiation Monitor Calibration
WO 01198962 01 1 RM-R-6454 Storm Drain Rad Monitor Calibration
WO 40054207 01 RM-R-6521Turbine Building Sump Radiation Monitor Calibration
WO 01192625 01 1-RM-RM-6509 Waste Liquid Test Tanks Discharge Rad Monitor Calibration
WO 40073173 01 1-RM-RM-6505 Condenser Air Evacuators Discharge Rad Monitor Calibration

Engineering System Health Reports
Radiation Monitoring System for 3rd Quarter 2011
Fuel Building Air Handling System for 3rd Quarter 2011
Containment Air Purge/ Containment On-line Purge System for 3rd Quarter 2011

Miscellaneous Documents Reviewed:
SB Inter Laboratory Radiochemistry QC Report 2011

Section 4OA1: Performance Indicator Verification
Condition Reports
CR 2010 to 2011

Miscellaneous
LER 4432010001 Emergency Air Cleanup System Inoperable due to Opening in Boundary
LER 4432010002 Containment Penetration Protective Devices Found Inoperable
LER 4432011001 Noncompliance with Technical Specification for Leakage Detection Instruments
Seabrook Emergency Preparedness Department Procedure EPDP-03, Emergency Preparedness Performance Indicators (Revision 24)
DEP PI data, April 2010 – September 2011
ERO Drill Participation PI data, April 2010 – September 2011
ANS Reliability PI data, April 2010 – September 2011
Station Operating Logs

Section 4OA2: Problem Identification and Resolution
Procedures:
PI-AA-204 Rev 14 Condition Identification and Screening Process
PI-AA-205 Rev 14 Condition Evaluation and Corrective Action
PEG 94 Rev 01 Service Water Inspection and Repair Trending
PEG 95 Rev 0 System Health Review of Material Condition
MS0517.12 R5 Application of Repair and Protective Coatings
OX1426.34, Diesel Generator 1A 18 Month Operability Surveillance, Completed 5/9/11
IS1616.490, “PCCW Temperature Valve Actuator Repair,” Revision 02, Chg. 04
MS0519.46, “CCI Atmospheric Dump Valve Maintenance,” Revision 8
IS1652.330, “Condenser Steam Dump Calibration and Stroke Time Testing,” Revision 3
IS0652.960. “Atmospheric Steam Dump Valve (ASDV) Actuator Maintenance,” Revision 4
IS0603.072, “Bailey Positioner Qualified Life Replacement,” Revision 3, Chg. 01
Condition Reports

AR 01637922	CR-01637922
AR 00160294	CR-99-04971
AR 01632409	CR-01-00114
AR 00180391	CR-06-00897

AR 01633034	CR-01-00199
AR 01632409	CR-01612061
AR 01637922	CR-01632409
AR 01612061	CR-1645405
AR 01636533	CR 01694951
AR 00180391	CR01629504
CR1710710*	CR1711486*

* NRC identified during this inspection.

Plant Modifications
EC 272285, CBA-CP-177 Breaker Coil Inductive Transient Suppressor, Revision 0
EC 272336, CBA-CP-178 Breaker Coil Inductive Transient Suppressor, Revision 0
EC 272004 R3 Belzona Repair of Cement Lining in Service Water Piping

Miscellaneous
3653, EPS Review and Troubleshooting Report, Revision 0
A640-1, Emergency Power Sequencing System Vendor Manual, Revision 13
AR 1648807, Unit Substation MOV Replacement PM, Dated 5/5/11
NRC Generic Letter 89-13
ASME Code Case N-513-2, Evaluation Criteria for Temporary Flaw Acceptance
DCR-93-003, Determination of Safety Evaluation Applicability
AR 1637922 Root Cause Report: Service Water (SW) Piping Reliability (CR 1637922, 4/5/11)
Service Water System Health Reports (1st, 2nd, 3rd quarters 2011)
Prompt Operability Determination (CR 01612061)

Drawings
1-NHY-310926, Sh. AC4H, Control Room Air Conditioner Unit A, Revision 1
1-NHY-310926, Sh. AE4H, Control Room Air Conditioner Unit B, Revision 1

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion
Procedures
ON1034.03, Condensate system Operation

Condition Reports
ARs1693814, 12693755, 1693925, 1693919
1994 SIR 94-063

Maintenance Orders/Work Orders
WO 01383321

Miscellaneous
Event Team Report for AR1693814
Clearance 1-CO-P-30B

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low as is Reasonably Achievable
ANS	Alert and Notification System
AR	Action Request
CAP/COP	Containment Air Purge
CBA	Control Building Air
CFR	Code of Federal Regulations
CW	Circulating Water
DEP	Drill and Exercise Performance
EAH	Emergency Air Handling
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedure
EPS	Emergency Power Sequencer
ERO	Emergency Response Organization
FAH	Spent Fuel Air Handling
FEMA	Federal Emergency Management Agency
GPI	Groundwater Protection Initiative
HEPA	High Efficiency Particulate Air
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
LER	Licensee Event Report
LLD	Lower Limits of Detection
MFP	Main Feedwater Pump
MR	Maintenance Rule
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Off-site Dose Calculation Manual
PAH	Primary Auxiliary Air Handling
PARS	Publicly Available Records
PEG	Plant Engineering Guideline
PI	Performance Indicator
QA	Quality Assurance
RCE	Root Cause Evaluation
RETS	Radiological Effluents Technical Specification
RM	Radiation Monitor
SDP	Significance Determination Process
SSC	Structure, System, or Component
SW	Service Water
TI	Temporary Instruction
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
V&V	Validation and Verification
WO	Work Orders
WRGM	Wide Range Gas Monitor
WTT	Waste Test Tank