UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

May 1, 2013

Mr. Kevin Walsh
Site Vice President
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 05000443/2013002

Dear Mr. Walsh:

On March 31, 2013, 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 April 4, 2013, with Mr. 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 two self-revealing findings of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because the finding is entered into your corrective action program, the NRC is treating the finding as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Seabrook Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding 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’s Public Document Room or from the Publicly Available Records component of the NRC’s Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report No. 05000443/2013002
w/ Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	05000443/2013002
Licensee:	NextEra Energy Seabrook, LLC
Facility:	Seabrook Station, Unit No.1
Location:	Seabrook, New Hampshire 03874
Dates:	January 1, 2013 through March 31, 2013
Inspectors:	P. McKenna, Acting Senior Resident Inspector S. Rich, Acting Senior Resident Inspector M. Jennerich, Resident Inspector B. Dionne, Health Physics Inspector
Approved by:	Glenn T. Dentel, Chief Reactor Projects Branch 3 Division of Reactor Projects

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SUMMARY

IR 05000443/2013002; 1/1/2013-3/31/2013; Seabrook Station, Unit No. 1; Maintenance Risk Assessments and Work Control and 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 two findings of very low safety significance (Green), one of which was an NCV. The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstone: Initiating Events

Green. A self-revealing finding of very low safety significance was identified for failure to follow procedures associated with switchyard maintenance activities on January 24, 2013. Specifically, in preparation for the planned maintenance on switchyard battery (SYB) #3, operators incorrectly performed NextEra procedure ON1048.07, Switchyard Battery Operation, which led to a loss of power on switchyard system (SYS) #2, disabled the SYS#2 breaker automatic closure feature, and increased the risk of a loss of offsite power. Corrective action was subsequently taken to secure the maintenance on SYB#3, and return it and the battery charger to service to supply loads to both Switchyard System #1 (SYS#1) and SYS#2. NextEra entered this issue into their corrective action program (CAP) as condition report (CR) 1841980.

This performance deficiency is more than minor because it was associated with the human 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. Specifically, not properly performing NextEra procedure ON1048.07 resulted in the loss of the SYS#2 breaker automatic closure feature, thereby increasing the risk of an initiating event due to a loss of off-site power. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" (IMC 0609A). The inspectors determined that the finding was of very low safety significance (Green) because the deficiency did not cause a reactor trip, and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because NextEra personnel did not utilize human error prevention techniques commensurate with the risk of the assigned task, such that work activities were performed safely. Specifically, NextEra personnel did not verify that the switchyard battery charger switch manipulation would result in the appropriate system response. [H.4(a)] (Section 1R13)

Cornerstone: Mitigating Systems

Green. A self-revealing NCV of technical specification (TS) 3.7.4 "Service Water System/Ultimate Heat Sink," resulted from operators' failure to follow procedures to evaluate a faulty SW cooling tower basin level instrument. Specifically, because NextEra personnel did not properly follow their Conduct of Operations procedure and the Operations Management Manual, an inaccurate level gage was used to determine SW cooling tower basin level. This resulted in the SW cooling tower basin level dropping and remaining below its TS minimum value for approximately 17 days. NextEra's immediate corrective actions included conducting a fast fill of the cooling tower basin via the fire protection system to restore operability on December 7, 2012, and entering the issue into their CAP as CR 1830734. Planned corrective actions included implementing a process for operations department oral boards to focus on standards applications, fundamentals, and use of situational questions.

This performance deficiency is more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone, and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the SW cooling tower basin level was below its TS minimum level of 42.15 feet for 17 days. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" (IMC 0609A). The inspectors determined that the finding was of very low safety significance (Green) because the deficiency did not affect the design or qualification of the SW system and it did not represent a loss of system safety function. Although the finding did involve the degradation of equipment specifically designed to mitigate a seismic initiating event, the SW cooling tower had sufficient margin available to satisfy its design basis requirements and safety function. This finding has a cross-cutting aspect in the area of Human Performance, Decision Making, because NextEra did not use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed, rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. Specifically, NextEra failed to properly evaluate which SW cooling tower level gage was inoperable and thus relied on an inoperable indication for SW cooling tower level. (H.1(b)) (Section 4OA3)

REPORT DETAILS

Summary of Plant Status

On January 1, 2013, Seabrook began the quarter operating at 91% power. The plant reached full power later that same day. On February 18, Seabrook reduced power to 94% for main turbine valve testing and returned to full power that same day. Seabrook remained at full power the remainder of the period. Documents reviewed for each section of this inspection report are listed in the Attachment.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

.1 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed NextEra's preparations for the onset of winter storm Nemo on February 7, 2013. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of, and during this, adverse weather condition. The inspectors walked down the emergency diesel generators, supplemental emergency power system (SEPS) diesel generators, and service water to ensure system availability. The inspectors verified that operator actions defined in NextEra's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- B control building air on January 10, 2013
- A safety injection on March 18, 2013
- A service water on March 28, 2013

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications (TS), 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. 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.

b. Findings

No findings were identified.

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

a. Inspection Scope

On February 11 and 12, 2013, the inspectors performed a complete system walkdown of accessible portions of the primary component cooling water system to verify the equipment lineup was correct. The inspectors reviewed operating procedures, drawings, equipment lineup procedures, 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, hangar 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.

- Primary auxiliary building (PAB) 53' on February 12, 2013
- Containment enclosure ventilation area 21' 6" on February 28, 2013
- Control building essential switchgear room B on March 21, 2013
- Control building battery room A/B/C/D on March 21, 2013
- Cooling power mechanical equipment room on March 21, 2013

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on February 22, 2013, that involved a fire in the Fuel Storage Building 64' level. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that NextEra personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives were met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with NextEra's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the corrective action program to determine if NextEra identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The

inspectors focused on emergency diesel jacket water cooling piping on the PAB 53' level to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on February 6, 2013, which included a steam generator tube leak coincident with a reactor coolant pump impeller failure resulting in fuel failure. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by licensed operations 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 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed the performance of atmospheric steam dump valve surveillance testing on March 12, 2013, and turbine driven emergency feedwater pump surveillance testing on March 20, 2013. The inspectors evaluated operator performance relative to control board manipulations, response to off-normal conditions, and the use of operating procedures, and verified that all actions were in accordance with NextEra's Conduct of Operations procedure OP-AA-100-1000, Revision 10. The inspectors assessed the clarity and effectiveness of communications, use of error prevention techniques, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, or component (SSC) performance and reliability. The inspectors reviewed system health reports, maintenance backlogs, and maintenance rule (MR) basis documents to ensure that NextEra was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, 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. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that NextEra staff were identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Air handling systems
- 1A emergency diesel generator (EDG)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

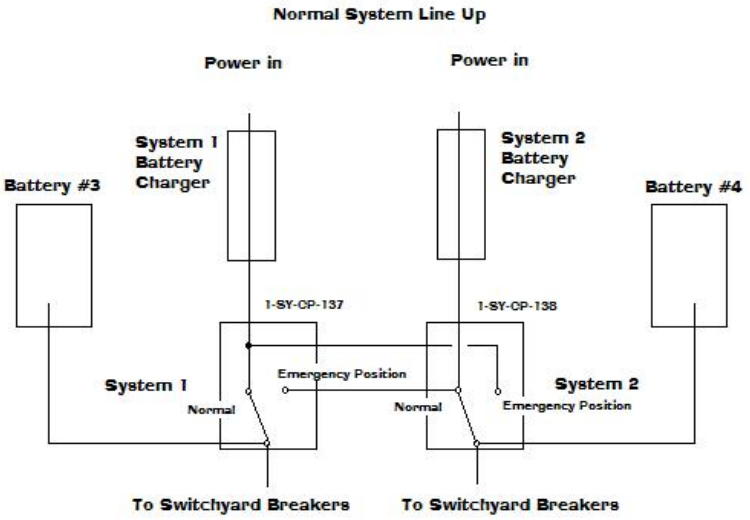
The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that NextEra performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk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

- Planned service water maintenance on January 10–11, 2013
- Planned switchyard battery testing on January 24, 2013
- Anticipated degradation of offsite power during winter storm on February 8, 2013
- Emergent replacement of A electrohydraulic control pump on February 13, 2013
- Planned SW cooling tower switchover on February 28, 2013

b. Findings

Introduction: A Green, self-revealing finding of very low safety significance was identified for failure to follow procedures associated with switchgear maintenance activities on January 24, 2013. Specifically, in preparation for the planned maintenance on switchyard battery (SYB) #3, operators incorrectly performed NextEra procedure ON1048.07, Switchyard Battery Operation, which led to a loss of power on switchyard system (SYS) #2, disabled the SYS#2 breaker automatic closure feature, and increased the risk of a loss of offsite power.

Description: The switchyards at Seabrook are two diverse and independent, but not completely redundant systems. Switchyard system 1 (SYS#1) provides breaker opening power and protective breaker trips for the switchyard system breakers and SYS#2 provides breaker closing power for all switchyard system breakers. Each switchyard system is supplied DC power via its battery and/or its battery charger (SYS#1 supported by SYB#3 and SYS#1 charger and SYS#2 supported by SYB#4 and SYS#2 charger). The normal power lineup for a switchyard system has its battery charger supplying power to its battery and loads. Each system charger is capable of simultaneously charging both switchyard system batteries and supplying both system's loads. This line-up is used during charger maintenance.



Each breaker in the Seabrook switchyard is designed with an automatic reclose device that will reclose a tripped breaker after the fault condition that tripped the breaker clears and the line conditions meet the system requirements for closing the breaker. The automatic reclose device is powered by SYS#2. A failure of this reclose feature affects the safe operation of the plant because it increases the probability that a loss of offsite power will occur. Specifically, if this feature fails, line faults that normally by design would result in a breaker trip and reclose (if the fault cleared), would result in a loss of offsite power. NextEra's PRA program for Seabrook credits the auto-closure feature of the switchyard breakers, and the loss of SYS#2, which provides the power for auto reclose, would cause an increase in the probability of core damage at Seabrook.

On January 24, 2013, during a planned maintenance discharge test of SYB#3, the control room received numerous 345 kV relay alarms for SYS#2. NextEra determined that the cause for the alarms was that SYB#4, the battery that supports SYS#2, was supplying DC power to SYS#2 for multiple days with its battery charger disconnected. Without the charger connected, SYB#4 fully discharged and DC power for SYS#2 was lost. NextEra secured the discharge test on SYB#3 and returned it and the battery charger for SYB#4 to service to supply loads to both switchyard systems. NextEra entered this issue into their CAP as CR 1841980 and conducted a root cause evaluation.

NextEra determined that on January 21, 2013, operators completed a line-up of the 345 kV switchyard system to prepare for maintenance on SYB#3. This required that SYS#1 charger be aligned to supply power to both SYS#1 and SYS#2 loads and that SYB#4 be aligned as back-up power for both SYS#1 and SYS#2. Operators used NextEra procedure ON1048.07, Switchyard Battery Charger Operation, to perform this line up. ON1048.07 step 4.7.3 stated, "At SY-CP-138, Node J71, Place Manual Throw-Over Switch #2 in the Emergency Position." When performing this step, instead of taking the switch to the emergency position, operators mistakenly positioned the switch to "OFF" (the unlabeled mid-position). The switch had two labels, "Normal" and "Emergency", and because it was the first time that both operators had performed this infrequent activity, they assumed the switch was in the "Emergency" position. The operators did not confirm the expected system response for placing this switch in the emergency position, which was an increase of SYS#1 battery charger load. NextEra procedure OP-AA-100-1000, Conduct of Operations, directs the use of human error prevention tools such as confirming expected system response during activities such as this. Not using these tools resulted in the operators incorrectly placing the switch in the "Off" position and not self-identifying the error. This isolated both chargers from SYS#2, placed all SYS#2 loads on SYB#4, and after SYB#4 was fully discharged, led to the loss of power to the automatic re-close device for all switchyard breakers.

Analysis: The inspectors determined that the failure of NextEra operators to position the manual throw-over switch #2 associated with SYS#2 to the emergency position in accordance with ON1048.07 step 4.7.3, was a performance deficiency. The inspectors determined that the performance deficiency was more than minor because it was associated with the human 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. Specifically, not properly performing NextEra procedure ON1048.07 resulted in the loss of the SYS#2 breaker automatic closure feature, thereby increasing the risk of an initiating event due to a loss of off-site power. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" (IMC 0609A). The inspectors determined that the finding was of very low safety significance (Green) because the deficiency did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because NextEra personnel did not utilize human error prevention techniques commensurate with the risk of the assigned task, such that work activities were performed safely. Specifically, NextEra personnel did not verify that the switchyard battery charger switch manipulation resulted in the appropriate system response. [H.4(a)]

Enforcement: Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement: **FIN 05000455/2013002-01, Loss of DC Control Power to Switchyard #2.**

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

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

- Offsite power operability with switchyard battery failures on January 15, 2013
- New fuel storage racks operability on February 11, 2013
- Seabrook LOCA mass and energy analysis on February 15, 2013
- Water intrusion in B essential switchgear room on February 19, 2013
- C steam generator steam leak on February 22, 2013
- SW pump 41A high vibrations on March 14, 2013

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 TS and UFSAR to NextEra's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by NextEra. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

.1 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the SW cooling tower pump 110-A implemented by engineering change 274623, "1-SW-P-110-A Vibration Reduction Control Motor Weight." The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design change, including associated engineering changes, calculations for added weight to the pump frame and motor, and industry operating experience.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)

a. Inspection Scope

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

- Planned maintenance on the SI pump discharge flow meter on February 5, 2013
- Planned maintenance on the SEPS to repair the rated frequency and voltage warning alarm on February 20, 2013
- Cooling tower portable makeup pump semi-annual diesel run on February 27, 2013
- Planned maintenance on 11B PCCW motor end bearing on March 5, 2013
- Planned maintenance on the A EDG on March 17, 2013
- Planned maintenance on the B EDG on March 29, 2013

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 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:

- OX1430.02, Main Steam Isolation Valve Quarterly Test on January 30, 2013 (In-service testing)
- OX1408.06, Controlled Leakage Monthly Surveillance on February 13, 2013 (RCS leak detection)

- OX1436.03, Electric Driven EFW Pump Group B Quarterly Operability Test on February 22, 2013 (Routine)
- OX1406.02, Containment Spray Pump and Valve Quarterly Operability on February 25, 2013 (Routine)
- OX1461.03, SEPS Operational Readiness Surveillance on March 9, 2013 (Routine)
- OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly on March 20, 2013 (Routine)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

NRC staff from the Office of Nuclear Security and Incident Response (NSIR) performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML13015A351 and ML123630336 as listed in the Attachment.

NextEra determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the 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 NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine NextEra emergency drill on February 6, 2013, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and the technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critiques to compare inspector observations with those identified by NextEra staff in order to evaluate NextEra's critique and to verify whether 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 and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

During March 11–14, 2013, the inspector reviewed and assessed NextEra's performance in assessing the radiological hazards and exposure control in the workplace. The inspector used the requirements in 10 CFR Part 20 and guidance in Regulatory Guide (RG) 8.38, Control of Access to High and Very High Radiation Areas for Nuclear Plants, TSs, and the NextEra procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspector reviewed 2012 performance indicators for the Occupational Exposure cornerstone for Seabrook Station. The inspector reviewed the results of RP program audits. The inspector reviewed reports of operational occurrences related to occupational radiation safety since the last inspection.

Radiological Hazard Assessment

The inspector reviewed whether there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspector evaluated whether the RP staff from NextEra assessed the potential impact of these changes and implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspector reviewed the last radiological surveys from the PAB, demin alley, and the reactor coolant loop piping. The inspector evaluated whether the thoroughness and frequency of the surveys were appropriate for the radiological hazard.

The inspector conducted walk-downs and independent radiation measurements in the facility, including radioactive waste processing, storage, and handling areas to evaluate material and radiological conditions.

The inspector selected one risk-significant work activity that involved exposure to radiation. For this work activity, the inspector assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspector evaluated the radiological survey program to determine if radiological hazards were properly identified.

The inspector evaluated whether continuous air monitors (CAMs) were located in areas of low sensitivity and were representative of actual work area breathing air. The

inspector evaluated the NextEra program for monitoring levels of loose surface contamination in areas of the plant with the potential for airborne radioactivity.

Instructions to Workers

The inspector selected five containers of non-exempt licensed radioactive materials. The inspector assessed whether the containers were properly labeled and controlled.

The inspector reviewed one radiation work permit (RWP) used to access a high radiation area (HRA), and evaluated whether the specified work control instructions and control barriers were consistent with TS requirements for an HRA. For this RWP, the inspector assessed whether the permissible dose for the work under the RWP was clearly identified. The inspector evaluated whether electronic dosimeter (ED) alarm set-points were in conformance with survey indications and plant procedural requirements.

The inspector reviewed two occurrences where a worker's ED noticeably malfunctioned or alarmed. The inspector evaluated whether workers responded appropriately. The inspector assessed whether the issue was included in the corrective action program and whether compensatory dose evaluations were conducted as appropriate.

Contamination and Radioactive Material Control

The inspector observed one location where NextEra Energy monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release of these materials from this area. The inspector observed the performance of personnel surveying and releasing material for unrestricted use, and evaluated whether the work was performed in accordance with plant procedures. The inspector assessed whether the radiation monitoring instrumentation used for equipment release and personnel contamination surveys had appropriate sensitivity for the types of radiation present.

Radiological Hazards Control and Work Coverage

The inspector evaluated ambient radiological conditions and performed independent radiation measurements during walk-downs of the facility. The inspector assessed whether the conditions were consistent with applicable posted surveys, RWPs, and associated worker briefings.

The inspector evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage and contamination controls. The inspector evaluated NextEra Energy's use of EDs in high noise areas that were also HRAs or LHRA.

The inspector assessed whether radiation monitoring devices were placed on the individual's body consistent with procedures. The inspector assessed whether the dosimeter was placed in the location of highest expected dose or properly implemented an NRC-approved method of determining effective dose equivalent.

The inspector examined the physical and programmatic controls for highly activated or contaminated materials stored within spent fuel and other storage pools. The inspector assessed whether appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

The inspector examined the posting and physical controls for selected HRAs, LHRAs and very high radiation areas (VHRA) to verify conformance with the occupational performance indicator.

Risk-Significant HRA and VHRA Controls

The inspector discussed with the Radiation Protection Manager (RPM) the controls and procedures for high-risk HRAs and VHRAs. The inspector discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRAs during certain plant operations. The inspector evaluated the controls for VHRAs and areas with the potential to become a VHRA.

Radiation Worker Performance

The inspector observed the performance of radiation workers with respect to stated RP work requirements. The inspector assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their behavior reflected the level of radiological hazards present.

The inspector reviewed three radiological ARs since the last inspection that attributed the cause of the event to human performance errors. The inspector evaluated whether there was an observable pattern traceable to a similar cause. The inspector assessed whether this perspective matched the corrective action approach taken to resolve the reported problems.

RP Technician Proficiency

The inspector observed the performance of the RP technicians with respect to controlling radiation work. The inspector evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their behavior was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspector reviewed two radiological problem reports since the last inspection that attributed the cause of the event to RP technician error. The inspector evaluated whether there was an observable pattern traceable to a similar cause. The inspector assessed whether this perspective matched the corrective action approach taken to resolve the reported problems.

Problem Identification and Resolution

The inspector evaluated whether problems associated with radiation monitoring and exposure control were being identified at an appropriate threshold and were properly addressed for resolution in the licensee's corrective action program. The inspector assessed the appropriateness of the corrective actions for a selected sample of problems that involve radiation monitoring and exposure controls. The inspector assessed the process for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02 – 1 sample)

a. Inspection Scope

The inspector assessed performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspector used the requirements in 10 CFR Part 20, RG 8.8 - Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be As Low As Is Reasonably Achievable, RG 8.10 - Operating Philosophy for Maintaining Occupational Radiation Exposure As Low as Is Reasonably Achievable, TSs, and the NextEra procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspector reviewed site-specific procedures associated with maintaining occupational exposures ALARA, which included a review of processes used to estimate and track exposures from specific work activities.

The inspector compared the results achieved (dose rate reductions, actual dose) with the intended dose established in the ALARA planning for these work activities. The inspector compared the person-hour estimates provided by maintenance planning and other groups to the RP group actual person-hours for the work activity, and evaluated the accuracy of these time estimates. The inspector assessed the reasons for any inconsistencies between intended and actual work activity doses.

The inspector determined whether post-job reviews were conducted to identify lessons learned. If problems were identified, the inspector verified that worker suggestions for improving dose and contamination reduction techniques were entered into the corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications (3 samples)

a. Inspection Scope

The inspectors reviewed NextEra's submittal of the following initiating events performance indicator results for the period of January 1, 2012 through December 31, 2012:

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complication
- Unplanned Power Changes per 7000 Critical Hours

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed NextEra's operator narrative logs, condition reports, and plant computer indications to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.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 Annual Sample: Residual Heat Removal (RHR) Pump Mechanical Seal Leakage

a. Inspection Scope

The inspectors performed an in-depth review of NextEra's root cause analysis and corrective actions associated with CR 1647943, excessive seal leakage from RHR pump RH-P-8-A with the pump shutdown. Specifically, the A RHR pump seal area developed an approximate 50 ml/min leak due to a combination of normal face wear, stuffing box distortion, and a shaft shoulder/stuffing box extension dimension which may have been set at the negative limit of the tolerance criteria.

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 50, Appendix B. In addition, the inspectors performed field walkdowns, reviewed the corrective action program for similar issues, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

NextEra determined that the root cause was the RHR pump maintenance procedure, MS0523.24, Ingersoll-Rand Residual Heat Removal Pump Maintenance, had an excessive tolerance for the shaft alignment to the stuffing box face dimension. The excessive tolerance was caused by allowing the alignment to vary in both axial directions along the pump shaft. The excessive tolerance combined with the stuffing box distortion and seal wear caused the shaft o-ring to ride on the shaft shoulder, causing o-ring leak by.

NextEra machined the A RHR pump shaft sleeve to the specified vendor dimensional tolerance and also changed procedure MS0523.24 such that the dimension tolerance is only allowed in one axial direction along the pump shaft, thereby reducing the alignment tolerance by half. The B RHR pump shaft sleeve and seal area will be inspected during the next refueling outage as part of the extent of condition review.

The inspectors reviewed the maintenance records and all condition reports associated with the RHR pumps to verify that the corrective actions taken were effective. The inspectors did not identify any additional issues from this review. The inspectors determined NextEra's evaluation of the issue appropriately identified the root and contributing causes. Additionally, the inspectors determined that the corrective actions developed as a result of the root cause analysis were reasonable commensurate with the safety significance of the RHR pumps.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 1 sample)

.1 (Closed) Licensee Event Report (LER) 05000443/2012-005-00: Service Water Cooling Tower Low Water Level

On December 7, 2012, with the plant at 100% power, Service Water Cooling Tower level was discovered to be below the technical specifications (TS) limit of 42.15 feet. Following discovery, a fast fill of the cooling tower was performed to restore water level above the TS limit. It was subsequently determined the cooling tower water level was below the TS limit for approximately 14 days greater than its TS allowed outage time. The cause of the event was failure to use diverse means to validate the accuracy of a potentially inaccurate cooling tower level indicator. The inspectors reviewed this LER and the associated condition report AR 1830734 and identified a finding that was a violation of regulatory requirements. This LER is closed.

b. Findings

Introduction: A self revealing, Green, non-cited violation (NCV) of TS 3.7.4 "Service Water System/Ultimate Heat Sink," resulted from operators' failure to follow procedures to evaluate a faulty SW cooling tower basin level instrument. The inspectors determined that on November 2, 2012, NextEra did not evaluate the operability of two redundant SW cooling tower level gages, in accordance with the Seabrook Operations Management Manual and Conduct of Operations procedure, after the two redundant indications were discovered to be indicating different basin levels. This resulted in the SW cooling tower

basin level dropping below its TS minimum value of 42.15 feet for approximately 17 days without operators restoring required level.

Description: At Seabrook the SW system transfers the heat produced by various loads in the plant, both safety-related and non-safety-related, to the ultimate heat sink. During normal operation the plant design provides that the ultimate heat sink is the Atlantic Ocean, but if flow to the SW system is restricted due to damage to the intake and discharge tunnels, the plant is designed such that a mechanical draft evaporative cooling tower is used as the heat sink.

On December 7, 2012, during a walk down of the SW cooling tower completed during performance of a SW cooling tower basin temperature instrument calibration, NextEra discovered that the SW cooling tower basin water level was 3 feet below its normal water level. NextEra determined that actual SW cooling tower water level was lower than the TS minimum level of 42.15 feet. NextEra's investigation also determined that the water level had remained in this condition for 17 days from approximately November 20 to December 7, 2012.

NextEra reviewed the circumstances that led to the low SW cooling tower basin water level and determined that on November 2, 2012, NextEra control room operators had identified that one SW cooling tower water level instrument, SW-LI-6139, was indicating approximately one foot lower than the its redundant instrument, SW-LI-6129. Operators generated an action report (AR) for SW-LI-6139 and a work order was initiated to determine the cause of the level divergence between these two instruments. The operating crew had confirmed the accuracy of the two instruments using alternate control room indications. SW-LI-6129 and SW-LI-6139 were compared to the SW cooling tower water level chart recorder and the related plant computer point. Based on this comparison, on November 2, the operators determined that the level indication provided by SW-LI-6129 was the accurate indication because it matched the level indications provided by the chart recorder and the computer point, while SW-LI-6139 did not. Operators then declared 1-SW-LI-6139 inoperable. However, NextEra later determined that both the computer point and the chart recorder used to determine the accurate level received their signal from SW-LI-6129. Therefore, all the indications matched because they were from the same indication source, not because they were all accurate. In fact, because SW-LI-6129 was the faulted instrument, between November 2 and December 7, 2012, all the indication relied upon to provide SW cooling tower level were incorrect. As a result starting on November 20, the SW cooling tower basin level was allowed to drop below the TS required minimum and the error was not discovered until December 7, 2012.

NextEra conducted a root cause evaluation (RCE) and determined that operators had a preconceived notion that the cooling tower level isolation valves from the SW system had leakage issues and that cooling tower level increased over time. Since SW-LI-6139 was reading low, it was assumed by all subsequent operating crews that 1-SW-LI-6139 was the deficient instrument and this was not challenged by any crew. NextEra determined that this was not in compliance with NextEra procedure OP-AA-100-1000, Conduct of Operations, which stated that all instrument readings were to be accepted as accurate and appropriate actions taken in response to indications until proven otherwise. Additionally, NextEra operations personnel did not follow the requirements of the NextEra Operations Management Manual that states, in part, that upon discovery of a change, leak deficiency, or other abnormality associated with a safety-related

component, an SRO shall inspect the component and assess the condition. No visual check or measurement of some other means of the SW cooling tower basin level was performed before the faulty level gage was declared the operable gage. NextEra determined the root cause to be that multiple operating crews were non-compliant with NextEra operations standards because of complacent behavior.

As immediate corrective action for the identified condition, NextEra performed a fast fill of the cooling tower basin via the fire protection system to restore operability on December 7, 2012. NextEra also entered the issue into their corrective action program as AR 01830734. Additional corrective actions resulting from the NextEra RCE included implementing a process for operations department oral boards to focus on standards applications, fundamentals, and use of situational questions. As part of the RCE, NextEra concluded that there was sufficient margin available in the SW cooling tower basin level to satisfy the design basis seven day tower activation requirement and therefore there was not a loss of system safety function.

Analysis: The inspectors determined that not evaluating the conflicting SW cooling tower basin level indications in accordance with Operations department standards and procedures was a performance deficiency that was within NextEra's ability to foresee and correct. Specifically, because NextEra personnel did not properly follow procedure OP-AA-100-1000 and the Operations Management Manual, an inaccurate level gage was used to determine SW cooling tower basin level. This resulted in the SW cooling tower basin level dropping and remaining below its TS minimum value for approximately 17 days. The inspectors determined that the performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone, and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" (IMC 0609A). The inspectors determined that the finding was of very low safety significance (Green) because the deficiency did not affect the design or qualification of the SW system and it did not represent a loss of system safety function. Although the finding did involve the degradation of equipment specifically designed to mitigate a seismic initiating event, the system was not assumed to be completely failed or unavailable, and the finding did not involve the total loss of any safety function that contributes to external event initiated core damage accident sequences.

This finding has a cross-cutting aspect in the area of Human Performance, Decision Making, because NextEra did not use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed, rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. Specifically, NextEra failed to properly evaluate which SW cooling tower level gage was inoperable in accordance with Operations department standards and thus relied on an inoperable indication for SW cooling tower level. (H.1(b))

Enforcement: Technical Specification 3.7.4 "Service Water System/Ultimate Heat Sink," requires, in part, that the SW system be operable with an operable mechanical draft cooling tower and two cooling tower service water loops with one operable cooling tower SW pump in each loop and return at least one loop and the mechanical draft cooling

tower to operable status within 72 hours, or be in at least hot standby within 6 hours and in cold shutdown within the following 30 hours. Contrary to the above, from approximately November 20 to December 7, 2012 the SW cooling tower was inoperable due to the SW cooling tower basin level dropping below its TS minimum value of 42.15 feet. Specifically, NextEra failed to evaluate the SW cooling tower level indications in accordance with their Operations Management Manual and Conduct of Operations procedure when the two control room level indications were noted to be different on November 2, 2012. This resulted in the SW cooling tower basin level going below its TS minimum value for approximately 17 days. Because this issue is of very low safety significance (Green), NextEra entered this into their corrective action program as AR 01830734 and implemented immediate corrective actions to restore the SW cooling tower level to an operable status, this finding is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 0500443/2013002-02, Failure to Evaluate Service Water Cooling Tower Level)**

4OA6 Meetings, Including Exit

On April 4, 2013, the inspectors presented the inspection results to Mr. Thomas Vehec, Plant General Manager, and other members of the Seabrook Station staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Arn, Plant Engineering
K. Boehl, ALARA Coordinator
V. Brown, Senior Licensing Engineer
M. Chevalier, RP Technical Staff Supervisor
J. Connolly, Site Engineering Director
T. Cooper, Plant Engineering
D. Currier, Emergency Preparedness Manager
K. Douglas, Maintenance Director
D. Flahardy, Radiation Protection Manager
F. Haniffy, Health Physics Specialist
G. Kim, PRA Safety Monitor
T. Millian, Fire Protection Trainer
M. Nadeau, RP Technical Superintendent
M. O'Keefe, Licensing Manager
V. Pascucci, Nuclear Oversight Manager
E. Pigott, Operations Manager
D. Ritter, Work Management Manager
D. Robinson, Chemistry Manager
M. Scannel, Radiological Services Supervisor
T. Smith, RP Operations Supervisor
R. Thurlow, Safety Manager
T. Vehec, Plant General Manager
K. Walsh, Site Vice President

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000443/2013002-01	FIN	Loss of DC Control Power to Switchyard #2 (Section 1R13)
05000443/2013002-02	NCV	Failure to Evaluate Service Water Cooling Tower Level (Section 4OA3)

Opened

None

Closed

05000443/2012-005-00	LER	Service Water Cooling Tower Low Water Level (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
NM11800, Hazardous Condition Response and Recovery Plan, Revision 25
OS1200.03, Severe Weather Conditions, Revision 19

Condition Reports
1846405, 1846504, 1846525, 1846772, 1846785, 1846787, 1846822, 1846862, 1846867, 1847222

Section 1R04: Equipment Alignment

Procedures
OS1005.05, Safety Injection System Operation, Revision 13
OS1012.01, PCCW Fill and Vent, Revision 10
OS1012.03, Primary Component Cooling Water Loop A Operation, Revision 21
OS1016.01, Service Water System Fill and Vent, Revision 16
OS1023.51, Control Room Ventilation and Air Conditioning System Operation, Revision 18
OS1223.01, Loss of Control Room Ventilation or Air Conditioning, Revision 15
OX1405.07, Safety Injection Quarterly and 18 Month Pump Flow, Revision 13
OX1416.04, Service Water Quarterly Pump and Discharge Valve Test and Comprehensive Pump Test, Revision 16

Condition Reports
1804421

Maintenance Orders/Work Orders
40178906

Miscellaneous
DBD-CC-01, Design Basis Document for Primary Component Cooling Water, Revision 4
PCCW System Health Report

Drawings
1-CBA-B20304, Control Building Air Handling Mechanical Room Elevation 75' Detail, Revision 16
1-CBA-B20308, Control Building Air Conditioning System Safety Related Chilled Water System Train B Detail, Revision 7
1-CBA-B20303, Control Building Air Handling, Revision 20
1-CC-B20204, Primary Component Cooling Loop A Overview, Revision 4
1-CC-B20205, Primary Component Cooling Loop A Overview, Revision 24
1-CC-B20206, Primary Component Cooling Loop A Overview, Revision 16
1-CC-B20207, Primary Component Cooling Loop A Overview, Revision 12
1-CC-B20208, Primary Component Cooling Loop A Overview, Revision 3
1-SI-B20446, Safety Injection System Intermediate Head Injection System Detail, Revision 17
1-SI-B20447, Safety Injection System High Head Injection System Detail, Revision 15
1-SW-B20794, Service Water System Nuclear Detail, Revision 35
1-SW-B20795, Service Water System Nuclear Detail, Revision 40

Section 1R05: Fire Protection

Condition Reports
1813853, 1850962, 1858247, 1858352

Miscellaneous
Seabrook Station Fire Protection Pre-Fire Strategies
Fire Drill Scenario dated 2/22/13

Section 1R06: Flood Protection Measures

Procedures
ECA-1.2, Emergency Operations Procedure - LOCA Outside Containment, Revision 25
OS0243.02 Fire Main Break, Revision 14
OS1216.01, Degraded Ultimate Heat Sink, Revision 22

Miscellaneous
DBD-PB-01, Design Basis Document for Plant Barriers, Revision 3

Section 1R11: Licensed Operator Requalification Program

Procedures
ES-0, Reactor Trip or Safety Injection, Revision 49
OP-AA-100-1000, Conduct of Operations, Revision 10
OS1202.05, Reactor Coolant System High Activity, Revision 12
OS1227.02, Steam Generator Tube Leak, Revision 19
OX1430.04, Main Steam System Valve Operability Testing, Revision 8
OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment, Revision 19

Condition Reports
1845749, 1846194

Section 1R12: Maintenance Effectiveness

Procedures
MS0539.37, EDG Engine Cylinder Head Maintenance, Revision 5
MX0539.45, Emergency Diesel Generator 1A Jacket Water Drop Test, Revision 5
OX1426.01, DG 1A Monthly Operability Surveillance, Revision 27
OX1426.26, DG 1A Semiannual Operability Surveillance, Revision 15
OX1426.35, Emergency Diesel Generator Interlock Test and Startup/Standby, Revision 1
PEG-45, Maintenance Rule Program Monitoring Actions, Revision 17

Condition Reports
0584192, 0585118, 1623270, 1631950, 1676423, 1682669, 1696926, 1808003, 1816077, 1829634, *1842906, 1847562, 1855614, 1855652, 1855760, 1855779, 1855896, 1855929, 1855965, 1856045, 1856127, 1856336, 1856438, 1856454, 1856556, 1856565, 1856647, 1856787, 1857147, 1857220, 1857237, 1857287, 1857311, 1861263

*NRC Identified

Maintenance Orders/Work Orders
40107431, 40107436, 40116086, 40156402, 40165785, 40181210, 40184169, 40192594, 40212256, 40212385, 40217883, 40221652,

Miscellaneous
1A and 1B EDG Lubrication Oil Sample Results, 04/12 – 01/13
1A EDG Operating Logs, 12/10/12 – 02/11/13
1B EDG Operating Logs, 11/26/12 – 03/12/13
EDG Preventative Maintenance Overview
Enclosure Air Handling System Health Report
Engineering Evaluation on Barring EDG Prior to Planned Surveillance Runs, 03/07/07
Engineering Evaluation to Perform Full Load Rejection Test On-Line, 02/12/13
FP22575, Colt Industries Fairbanks Morse Engine, Revision 43
System Health Report, Control Building Air Handling, 10/1/12 – 12/31/12
System Health Report, Primary Auxiliary Building Air Handling, 10/1/12 – 12/31/12
System Health Report, Unit 1 Diesel Generator System, 10/1/12 – 12/31/12

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
ON1048.07, Switchyard Battery Charger Operation, Revision 8
OP-AA-102-1003, Guarded Equipment, Revision 3
WM 10.1, Online Maintenance, Revision 8
WM 11.1, Protected Train and Guarded Equipment, Revision 16
WM-AA-1000, Work Activity Risk Management, Revision 13

Condition Reports
1841980, 1842252, 1848022, 1848590

Miscellaneous
Maintenance Rule a(4) Assessment Report for Work week 1302
Maintenance Rule a(4) Assessment Report for Work week 1305
Maintenance Rule a(4) Assessment Report for Work week 1306
Maintenance Rule a(4) Assessment Report for Work week 1308

Drawings
1-NHY-309705, 345kV Switchyard Station DC Distribution Single Line Diagram, Sheet 1, Revision 12
1-NHY-309705, 345kV Switchyard Station DC Distribution Single Line Diagram, Sheet 2, Revision 12

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
EN-AA-203-1001, Operability Determinations/Functionality Assessments, Revision 9
ON1048.07, Switchyard Battery Charger Operation, Revision 8
OP-AA-100-1000-10000, Initial Operability Screening Aid, Revision 0
OS1023.74, Maintenance of Safety Related HVAC Systems – Compensatory Ventilation Procedure, Revision 13

Condition Reports
1730493, 1841980, 1844338, 1847541, 1847661

Miscellaneous
Past Operability Review dated March 14, 2013
Prompt Operability Determination, Noted Steam Leak on RC-E-11C Secondary Side, Revision 0
Prompt Operability Determination, Water Intrusion in Multiple Panel Locations in B Switchgear, Revision 0
Seabrook USFAR, various chapters

Drawings
1-NHY-309705, sh.1, 345KV Switching Station DC Distribution Single Line Diagram, Revision 12
1-NHY-309705, sh.2, 345KV Switching Station DC Distribution Single Line Diagram, Revision 12

Section 1R18: Plant Modifications

Miscellaneous
C-S-1-23610, SW-P-110 A+B 2000 Pound Vibration Control Weight Evaluation, Revision 0

Engineering Change
14317, SWCT Pump 110B Vibration Fix, Revision 0
16085, Service Water Pump Upgrades, Revision 0
270535, AR8883 SW-P-110B Vibration Control Motor Weight, Revision 0
274623, 1-SW-P-110-A Vibration Control Motor Weights, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures
LS0563.64, DG 1A Timing Relay Retest, Revision 4
MS0523.20, Ingersoll Rand Primary Component Cooling Pump Maintenance, Revision 6
MS0523.26, Horizontal Shaft Alignment, Revision 15
MS0539.11, Emergency Diesel Generator Pre-Lube Pump Maintenance, Revision 7
MX0539.45, Emergency Diesel Generator 1A Jacket Water Drop Test, Revision 5
MX0539.65, A EDG Mechanical Governor Venting and Setup after Replacement, Revision 3
ON1061.01, Operation of SEPS, Revision 5
ON1416.11, Cooling Tower Portable Makeup Pump Semi-Annual Diesel Run, Revision 5
OX1426.26, DG 1A Semiannual Operability Surveillance, Revision 15
OX1426.27, DG 1B Semiannual Operability Surveillance, Revision 16
OX1426.31, Emergency Diesel Generator 1B Interlock Test and Startup/Standby Surveillance, Revision 3
OX1426.35, Emergency Diesel Generator 1A Interlock Test and Startup/Standby, Revision 1
OX1461.04, SEPS Monthly Availability Surveillance, Revision 7

Condition Reports
1803106, 1845278, 1845521, 1845552, 1853700, 1853796, 1853968, 1862124, 1862126, 1862129, 1862132, 1862133, 1862138, 1862144, 1862148, 1862150

Maintenance Orders/Work Orders
40107431, 40107436, 40156402, 40158309, 40160838, 40165785, 40173877, 40177028, 40182864, 40178947, 40200342, 40178947, 40178909, 40172896, 40181210, 4021256, 40212385, 40217883, 40221652

Miscellaneous
UFSAR Section 9.2.5 Ultimate Heat Sink

Section 1R22: Surveillance Testing

Procedures
OX1406.02, Containment Spray Pump and Valve Quarterly Operability, 18 Month Position Indication and Comprehensive Pump Testing, Revision 17
OX1408.06, Controlled Leakage Monthly Surveillance, Revision 5
OX1430.02, Main Steam Isolation Valve Quarterly Test, Revision 16
OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment, Revision 19
OX1436.03, Electric EFW Pump Quarterly, 18 Month/30 Days Cold Shutdown and Comprehensive Pump Tests, and Monthly Valve Verification Surveillance, Revision 17
OX1456.81, Operability Testing of IST Valves, Revision 16
OX1456.86, Operability Testing of IST Pumps, Revision 7
OX1461.03, SEPS Operational Readiness Status Surveillance, Revision 1

Condition Reports
0220617, 0595883, 1684613, 1779493, 1707873, 1815265, 1824787, 1853638

Maintenance Orders/Work Orders
40058751, 40049326, 40054437, 40163302, 40163358, 40163674, 40166185, 40212253

Drawings
1-CS-B20725, Chemical and Volume control Charging System, Revision 30

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures
ER 1.2, Emergency Plan Activation, Revision 60

Miscellaneous
Emergency Plan, Revision 63
Evacuation Time Estimate Study Update

Section 1EP6: Drill Evaluation

Procedures
EP-AA-101-1000, Nuclear Division Drill and Exercise Procedure, Revision 5
ER 1.1, Classification of Emergencies, Revision 52
ER 1.2, Emergency Action Plan Activation, Revision 61
ER 3.1, Technical Support Center Operations, Revision 53
PI-AA-204, Condition Identification and Screening Process, Revision 19

Condition Reports
01845746, 01846110, 01846118, 01846129, 01846461, 01848009, 01848116, 01848133, 01848134, 01848140, 01848144, 01848149, 01848165, 01848166, 01848168, 01848169, 01848170, 01848172, 01848175, 01848178, 01848181, 01848186, 01848237, 01848243, 01848246, 01848255, 01848306, 01848310, 01848332, 01848352, 01848404, 01848411, 01848422

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

Procedures
HD0958.03, Personnel Survey and Decontamination Techniques, Revision 24
HD0958.04, Posting of Radiologically Controlled Areas, Revision 33
HD0958.17, Performance of Routine Radiological Surveys, Revision 12
HN0958.25, High Radiation Area Control, Revision 37
HN0958.30, Inventory and Control of LHRA or VHRA Keys and Locksets, Revision 26
HN0958.32, Release of Material from Radiological Control, Revision 20
HD0958.56, Alpha Monitoring, Revision 1

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0183812, Assess Changes to Alpha Monitoring Program Changes
1691045, Assessment for Revised Guidelines for Radiation Protection at Nuclear Power Stations, INPO 05-008, November 29, 2012

Condition Reports
1691045, 1820091, 1824184, 1829940, 1836289, 1845224, 1848042, 1852088, 1856230

Miscellaneous
HN0958.25 Form A Log of VHRA and LHRA Access Points, 02/26/13
HN0958.25 Form C LHRA Key Issue Log, 03/12/13
RWP 13-0004 STOW Operator Maintenance in PAB
Seabrook Updated Final Safety Analysis Report
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Section 2RS02: Occupational ALARA Planning and Controls

Procedures
RP-AA-104-1000, ALARA Implementing Procedure, Revision 3

Audits, Self-Assessments, and Surveillances
Quality Summary Radiation Safety Committee Meeting, 12/17/12
01836312, 5 Year ALARA Plan Status

Condition Reports
1678587, 0222202, 1686249, 1828608, 1856278, 1856190

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Post Job ALARA Review 12-03 Steam Generator Secondary Maintenance, 01/04/13
RWP-0038, Steam Generator Primary Side Work, 03/10/12
RWP-12-0056, In-Service Inspection, 10/14/12

Seabrook Station 5 Year ALARA Plan 2012 – 2016, 12/12
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Section 4OA1: Performance Indicator Verification

Procedures
NAP-206, NRC Performance Indicators, Revision 6

Miscellaneous
Initiating Events data submitted to NRC 1Q2012 to 4Q2012
Plant Computer Power Data
Seabrook LER 2012-001 through LER 2012-004

Section 4OA2: Problem Identification and Resolution

Procedures
MS0523.24, Ingersoll-Rand Residual Heat Removal Pump Maintenance, Revision 8

Condition Reports
1647943, 1707385, 1811241, 1812473

Maintenance Orders/Work Orders
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Miscellaneous
Effectiveness Review for A RHR Pump Mechanical Seal Leakage, 12/5/12
FP53593, Ingersoll-Rand Instruction Manual I075-20, Revision 17
RH System Health Report, 10/1/12-12/31/12
RHR Pumps Preventative Maintenance Schedule, 2/11/13
Root Cause for RH-P-8-A Seal Leakage Extends Refueling Outage Duration, 06/30/11

Drawings
05KPX815979, RHR Pump Mechanical Seal, Revision C

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Procedures
OP-AA-100, Operations Expectations, Revision 0
OP-AA-100-1000, Conduct of Operations, Revision 10
Operations Management Manual, Revision 98

Condition Reports
1819328, 1828845, 1830734, 1830756

Miscellaneous
C-S-1-83619-CALC, Allowable Boundary Valve Leakage for Cooling Tower Operation, Revision 1
ODI 87, Operations Management Expectations, Revision 35

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
AR	action request
CAM	continuous air monitor
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
ED	electronic dosimeter
EDG	emergency diesel generator
EPIP	Emergency Plan Implementing Procedure
HRA	high radiation area
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
LER	Licensee Event Report
LHRA	locked high radiation area
MR	Maintenance Rule
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incident Response
PAB	Primary Auxiliary Building
RG	Regulatory Guide
RHR	residual heat removal
RP	radiation protection
RPM	Radiation Protection Manager
RWP	radiation work permit
SDP	Significance Determination Process
SEPS	supplemental emergency power system
SSC	structure, system, or component
SW	service water
SYS	switchyard system
SYB	switchyard battery
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
VHRA	very high radiation area
WO	work order