



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

May 12, 2010

Mr. Paul Freeman
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 05000443/2010002

Dear Mr. Freeman:

On March 31, 2010, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1. The enclosed report documents the inspection findings discussed on April 8, 2010, with you and other members of your staff.

These inspections 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.

The report documents one licensee-identified violation which was determined to be of very low safety significance. However, because of the very low safety significance and because the issue was entered into your corrective action program, the NRC is treating the finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy.

If you contest any 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 the Seabrook Station. In addition, if you disagree with the characterization of 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 the Seabrook Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

P. Freeman

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Sincerely,

A handwritten signature in black ink, appearing to read 'Arthur L. Burritt', written in a cursive style.

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

Docket No. 50-443

License No: NPF-86

Enclosure: Inspection Report No. 05000443/2010002
w/ Attachment: Supplemental Information

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Sincerely,

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

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U. S. NUCLEAR REGULATORY COMMISSION**REGION I**

Docket No.: 50-443

License No.: NPF-86

Report No.: 05000443/2010002

Licensee: NextEra Energy Seabrook, LLC

Facility: Seabrook Station, Unit No.1

Location: Seabrook, New Hampshire 03874

Dates: January 1, 2010 through March 31, 2010

Inspectors: W. Raymond, Senior Resident Inspector
J. Johnson, Resident Inspector
F. Arner, Senior Reactor Inspector
E. Bonney, Reactor Inspector
R. Moore, Project Engineer

Approved by: Arthur Burritt, Chief
Projects Branch 3
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000443/2010002; 01/01/2010-03/31/2010; Seabrook Station, Unit No. 1; Routine Integrated Report.

The report covered a three-month period of inspection by resident and regional specialist inspectors. 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.

No findings of significance were identified.

Other Findings

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

REPORT DETAILSSummary of Plant Status

Seabrook operated at full power for the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Preparation (71111.01 – 2 samples).1 Readiness for Impending Extreme Weather Conditionsa. Inspection Scope

The inspectors completed two impending weather conditions inspection samples. The inspectors assessed NextEra readiness for extreme cold weather during January 2010 and during winter storm conditions during February and March 2010. The inspectors reviewed the updated final safety analysis report (UFSAR) descriptions for related design features and verified the adequacy of the station procedures for adverse weather protection. The inspectors reviewed NextEra actions per procedure OS1200.03 for severe weather, and OS1246.02 for degraded vital alternate current (AC) power supplies. The inspectors reviewed the status of susceptible and risk significant systems, specifically the service water, emergency feedwater and 4 KV electrical systems. The inspectors reviewed deficiencies related to extreme weather preparation and verified that identified issues were entered into the corrective action program. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04 - 3 samples, 71111.04S - 1 sample).1 Partial Walkdowna. Inspection Scope

The inspectors completed three partial system walk down inspection samples for the plant systems listed below. The inspectors verified that valves, switches, and breakers were correctly aligned in accordance with Seabrook's procedures and that conditions that could affect system operability were appropriately addressed. The inspectors reviewed applicable piping and instrumentation drawings and system operational lineup procedures. The documents reviewed are listed in the Attachment.

- 'B' emergency diesel generator (EDG) and support systems during planned maintenance outage for the 'A' EDG on January 11-15, 2010
- 'A' EDG and support systems during planned maintenance outage for the 'B' EDG on January 25-30, 2010

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- 'B' EDG and support systems during emergent maintenance on the 'A' EDG on March 17-18, 2010

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

The inspectors performed a complete system walk down inspection of the containment building air system to verify the system was properly aligned and capable of performing its safety function. To ascertain the required system configuration, the inspectors reviewed plant procedures, system drawings, the UFSAR, and the Technical Specification (TS). The inspectors walked down the accessible portions of the system to verify overall material condition; that valves were correctly positioned; that electrical power was available; that major system components were properly labeled; that essential support systems were operational; and that ancillary equipment or debris did not interfere with system performance. The inspectors reviewed applicable piping and instrumentation drawings and system operational lineup procedures. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 6 samples)

.1 Quarterly Review of Fire Areas:

a. Inspection Scope

The inspectors completed six quarterly fire protection inspection samples. The inspectors examined the areas of the plant listed below to assess: the control of transient combustibles and ignition sources; the operational status and material condition of the fire detection, fire suppression, and manual fire fighting equipment; the material condition of the passive fire protection features; and the compensatory measures for out-of-service or degraded fire protection equipment. The inspectors verified that the fire areas were maintained in accordance with applicable portions of Fire Protection Pre-Fire Strategies and Fire Hazard Analysis. The documents reviewed are listed in the Attachment.

- TB-F-1-0 (Turbine Building 21 ft elevation EHC skid area)
- CB-F-2B-A and CB-F-2C-A (Control Building 50 ft, Mech Room A and B)
- W-F-6-0 and W-F-7-0 (Waste Processing Building 86 ft)
- W-F-8-0 and W-F-9-0 (Waste Processing Building 53 ft)
- CB-F-3-A and CB-F-3-C (Control Room 75 ft and Computer Room 75 ft)
- CB-F-1A-A (Control Building 21 ft)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

a. Inspection Scope

The inspectors completed one flood protection measures inspection sample. The inspectors reviewed the flood protection measures designed to protect the Train 'A' essential switchgear room and relay room no. 1 from the effects of internal flooding. The inspectors reviewed NextEra's flooding evaluation for the selected areas, the availability and testing of turbine building flooding alarms and alarm response procedures. The inspectors also performed walk downs of the selected areas to verify that as-found equipment and conditions were consistent with the design basis documents. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11Q - 1 samples)

.1 Quarterly Resident Inspector Review

a. Inspection Scope

The inspectors completed one quarterly licensed operator regualification program inspection sample. Specifically, the inspectors observed simulator examinations of licensed operators in March 2010, for scenarios involving transients (loss of electrical power) and design basis events (loss of reactor coolant). The inspectors also reviewed simulator training in February 2010, for scenarios involving damage to large areas of the plant (aircraft impact). The inspectors reviewed operator actions to implement the abnormal and emergency operating procedures. The inspectors examined the operators' ability to perform actions associated with high-risk activities, the Emergency Plan, previous lessons learned items, and the correct use and implementation of procedures. The inspectors observed and reviewed the training evaluator's critique of operator performance and verified that deficiencies were adequately identified, discussed, and entered into the corrective action program. The inspectors reviewed the simulator's physical fidelity in order to verify similarities between the Seabrook control room and the simulator. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)a. Inspection Scope

The inspectors completed two maintenance effectiveness inspection samples. The inspectors reviewed performance-based problems or completed performance and condition history reviews involving selected in-scope structures, systems or components (SSCs) to assess the effectiveness of the maintenance program. Reviews focused on: proper Maintenance Rule (MR) scoping in accordance with 10 CFR 50.65; characterization of reliability issues; tracking system and component unavailability; 10 CFR 50.65 (a)(1) and (a)(2) classifications; identifying and addressing common cause failures, trending key parameters, and the appropriateness of performance criteria for SSCs classified (a)(2) as well as the adequacy of goals and corrective actions for SSCs classified (a)(1). The inspectors reviewed system health reports, maintenance backlogs, and MR basis documents. The documents reviewed are listed in the Attachment.

- 'A' EDG performance and MR (a)(2) classification with a focus on lubricating oil cooling system performance (AR 214900, 219082 and OX1426.22 on 1/16/2010)
- 'A' train primary component cooling water system performance and MR classification (a)(2) with a focus on heat exchanger E17A performance (AR207898)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)a. Inspection Scope

The inspectors completed four maintenance risk assessment and emergent work control inspection samples. The inspectors reviewed the scheduling and control of planned and emergent work activities in order to evaluate the effect on plant risk. The inspectors conducted interviews with operators, risk analysts, maintenance technicians, and engineers to assess their knowledge of the risk associated with the work, and to ensure that other equipment was properly protected. The inspectors reviewed the availability of opposite train guarded and protected equipment. The compensatory measures were evaluated against Seabrook procedures, Maintenance Manual 4.14, "Troubleshooting," Revision 0 and Work Management Manual 10.1, "On-Line Maintenance," Revision 3. Specific risk assessments were conducted using Seabrook's "Safety Monitor", as applicable. The documents reviewed are listed in the Attachment. The inspectors reviewed the maintenance items listed below.

- Planned work associated with the 'A' EDG as part of the EDG maintenance overhaul on January 11-15, 2010 (WO 01199338).
- Planned work to inspect and test the 'B' EDG as part of the EDG maintenance overhaul (WO 01186439).
- Emergent maintenance associated with 'B' EDG lube oil high temperature switch replacement on March 5, 2010 (WO 1206797, AR 217356)
- Emergent maintenance to troubleshoot and repair 'A' EDG automatic trip due to lube oil high temperature on March 17, 2010 (WO 1208404, AR 219030).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 3 samples)

a. Inspection Scope

The inspectors completed three operability evaluation inspection samples. The inspectors reviewed operability evaluations and condition reports to verify that identified conditions did not adversely affect safety system operability or overall plant safety. The evaluations were reviewed using criteria specified in NRC Regulatory Issue Summary 2005-20, "Revision to Guidance formerly contained in NRC Generic Letter 91-18, Information to Licensees Regarding two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability" and Inspection Manual Part 9900, "Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety." In addition, where a component was determined to be inoperable, the inspectors verified that TS limiting condition for operation implications were properly addressed. The documents reviewed are listed in the Attachment. The inspectors also performed field walk downs and interviewed personnel involved in identifying, evaluating or correcting the identified conditions. The following items were reviewed:

- CR211216, operability of the steam generator pressure high negative rate actuation channel on the 'C' steam generator following identification of a mis-positioned jumper and incorrect lead-lag time constants on January 13
- CR214900, operability of the 'A' EDG with high lubricating oil temperatures during a loaded run per OX1426.22 on January 16
- CR219030, operability of the EDGs after the 'A' EDG tripped on high lubricating oil temperature during a surveillance test on March 17

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 1 sample)

.1 Temporary Modifications

a. Inspection Scope

The inspectors completed one temporary modification inspection sample. The inspectors reviewed a modification package EC 145262, which encapsulated a leak on the turbine electro-hydraulic skid, to verify that the design bases and performance capability of the system was not degraded and that the fire and transient risks were adequately controlled during the modification. The inspectors verified the new configuration was accurately reflected in the design documentation, and that the post-modification testing was adequate to ensure the SSCs would function properly. The inspectors interviewed plant staff, and reviewed issues entered into the corrective action program to verify that NextEra was effective at identifying and resolving problems

associated with temporary modifications. The 10 CFR 50.59 evaluation associated with this temporary modification was also reviewed. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors completed five post-maintenance testing (PMT) inspection samples. The inspectors observed portions of PMT activities in the field to verify the tests were performed in accordance with the approved procedures. The inspectors assessed the test adequacy by comparing the test methodology to the scope of the maintenance work performed. The inspectors evaluated the test acceptance criteria to verify that the test procedure ensured that the affected systems and components satisfied applicable design, licensing bases and TS requirements. The inspectors also reviewed recorded test data to confirm all acceptance criteria were satisfied during testing. The documents reviewed are listed in the Attachment. The activities reviewed are listed below:

- Retest of the 'A' EDG on January 15 per OX 1426.01 following the maintenance overhaul repairs per WOs: 01199751, 01199338, 01186675, 01186680 and 01173140
- Retest of the 'B' EDG on January 30 per OX 1426.05 following the maintenance overhaul repairs per WOs: 01186439, 01192392, 01186539, 01186532, 00625323 and 01195311
- Retest of 'A' Diesel Generator Supply Fan DAH-FN-25A on January 13 following motor replacement per WO 622252
- Retest of 'A' Diesel Generator on January 15 following modification of 1-DG-V-29A (EC144952) per WO 1199338
- Retest of containment building spray system valve CBS-V-43 on March 2 following motor-operated valve lubrication and starter inspection per WO 1189131

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

The inspectors completed six surveillance testing inspection samples. The inspectors observed portions of surveillance testing activities for safety-related systems to verify that the system and components were capable of performing their intended safety function, to verify operational readiness, and to ensure compliance with required TS and surveillance procedures. The inspectors attended selected pre-evolution briefings, performed system and control room walk downs, observed operators and technicians perform test evolutions, reviewed system parameters, and interviewed the system engineers and field operators. The test data recorded was compared to procedural and

TS requirements, and to prior tests to identify any adverse trends. The documents reviewed are listed in the Attachment. The following surveillance activities were reviewed:

- OX1456.01 and OX1456.50, Charging Pump and Valve and ESFAS K616 Quarterly Test (IST) on February 3, 2010
- OX1416.08 and OX1416.05, Cooling Tower Pump Quarterly Test and Basin Surveillance on February 5, 2010 (AR216070)
- IX1640.322, Steam Generator C Pressure Protection Channel III Calibration on February 18, 2010 (AR211215)
- OX 1436.08, Startup Feed Pump Quarterly Surveillance, Revision 11 on January 2, 2010 (WO 1192155)
- OX 1406.12, 18, Month Containment and Containment Spray Recirculation Sump Surveillance, Revision 8 on January 20, 2010 (WO 1195171)
- OX 1426.26, DG 1A 18 Semiannual Operability Surveillance, Revision 6 on January 17, 2010 (WO 1191220)

The inspectors reviewed deficiencies related to surveillance testing and verified that the issues were entered into the corrective action program. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 2 samples)

.1 Emergency Preparedness Drill

a. Inspection Scope

The inspectors completed the one drill evaluation inspection sample. On February 10 and March 24, 2010, the inspectors observed portions of combined function drills 10-01 and 10-02 to evaluate the conduct of the drill and the adequacy of NextEra's post-drill critique. The inspectors observed activities in the simulator control room, emergency operations facility and technical support center to ensure that priorities were appropriately identified and communicated. The inspectors verified that event classifications and notifications were properly conducted in accordance with NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 5. The inspectors observed emergency response organization activities to ensure that priorities were appropriately identified and communicated.

The inspectors also verified that identified problems were entered into the corrective action program through observation of the critique, interviews of applicable drill participants, and review of condition reports initiated. The inspectors also reviewed emergency plan issues entered into the corrective action program as Condition Report 217980. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Simulator-Based Licensed Operator Requalification Training Evolution

a. Inspection Scope

The inspectors completed one drill evaluation inspection sample. On March 18, 2010, the inspectors observed a drill from the control room simulator during licensed operator requalification training. The inspectors evaluated the drill performance relative to developing event classifications and notifications. The inspectors reviewed the Seabrook Emergency Initiating Condition Matrix. The inspectors referenced Nuclear Energy Institute 99-02, "Regulatory Assessment PI Guideline", Revision 5, and verified that NextEra correctly counted the drill's contribution to the NRC Performance Indicator (PI) for drill and exercise performance.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151- 4 samples)

a. Inspection Scope

The inspectors reviewed NextEra information from 2009 for the Seabrook performance indicators PIs listed below: To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, was used to verify the basis in reporting each data element.

.1 Initiating Events Cornerstone

a. Inspection Scope

The inspectors sampled NextEra submittals for the Initiating Events cornerstone PIs listed below for the period from January 2009 through December 2009.

- Unplanned Scrams per 7,000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Power Changes per 7,000 Critical Hours

The inspectors reviewed licensee event reports (LERs), operating logs, procedures, and interviewed applicable personnel to verify the accuracy and completeness of the reported data. The inspectors also reviewed the accuracy of the number of critical hours reported.

b. Findings

No findings of significance were identified.

2. Mitigating System Cornerstone

a. Inspection Scope

The inspectors reviewed NextEra submittals from the first quarter of 2009 to the fourth quarter of 2009 for the Seabrook emergency AC power system mitigating systems performance index (MSPI) performance indicator. The inspectors reviewed the consolidated data entry MSPI derivation reports for the unavailability and unreliability indexes for the system; the monitored component demands and demand failure data for the monitored system; and the train and system unavailability data for the monitored system. The inspectors verified the accuracy of the data by comparing it to corrective action program records, control room operators' logs, maintenance rule performance and scope reports, system performance/health reports, the equipment/operability issues database, the site operating history database, key performance indicator summary records, operating data reports and the MSPI basis document.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - 1 sample)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the Seabrook corrective action program (CAP). This review was accomplished by accessing NextEra's computerized database. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Annual Sample – Inoperable Main Steam Isolation Actuation Channel

a. Inspection Scope

The inspectors reviewed the identification, evaluation, and corrective actions taken by NextEra to address a protection system channel that was found inoperable during routine testing. This condition was first identified during the calibration of Steam Generator C Protection Channel III pressure loop 1-FW-P-536 per IX1640.332 on November 17, 2009.

b. Findings and Observations

The steam generator pressure high negative rate engineered safety feature actuation system (ESFAS) function is identified as functional unit 4.e in the Seabrook TS, Tables 3.3-3 and 3.3-4. This functional unit is applicable only to the steam line isolation protection function and is required to be available only in Mode 3 of plant operation. The function is automatically blocked above the P-11 permissive (1950 psig). The actuation of this ESFAS protection function is dynamically compensated with a lead-lag multiplier. TS Table 3.3-4 requires the time constant utilized in the lead-lag controller for the steam line pressure negative rate function must be greater than or equal to 50 seconds, and the channel calibration must ensure the time constant is adjusted to this value. The lead-lag time constants are set to the TS T3.3-4 requirements using calibration procedure IX1640.322.

During the calibration on November 17, 2009, NextEra identified a jumper on a circuit card (NLL C3-429) that was out of position. The jumper (TP3) was in the variable position versus the design required fixed position. This potentially affected the lead-lag time constants and trip set point for the FW-PY536 steam line isolation channel. On November 17 with the TP3 jumper in the variable position, the as-found lead-lag time constants were: lead - 48.79 seconds, and lag - 41 seconds. Thus, SG C Protection Channel III PY536 was not in the design configuration and the time constants did not meet the ESFAS TS T3.3-4 settings. NextEra determined that the jumper was placed in the incorrect position when IX1640.322, step 4.17.3 was last performed on 5/13/2008.

On November 17, NextEra restored the NLL 03-429 design configuration and satisfactorily completed the channel calibration to restore the TS required time constants. NextEra addressed the extent of condition for this issue by verifying that the jumpers on 24 similar 7300 cards in the protection channels for all four steam generators were properly installed. These inspections did not identify additional unacceptable conditions. NextEra also enhanced procedure IX1640.322 to require concurrent verification of the final positions for the jumpers on 7300 cards.

NextEra evaluated the operability of protection channel PY536 with the as found values for the NLL C3-429 time constants. NextEra determined that the mispositioned TP3 jumper primarily impacted the lag time constant and that changes in the lead time constant were primarily due to instrument drift. The evaluation showed that with lead/lag time constants of 48/41 seconds, the channel provided a steam generator (SG) pressure high rate trip that was acceptable relative to the TS values. The trip using time constant required by the TS (>50/50 seconds) was approximately 30 seconds. Using the as-found lead-lag time constants, NextEra determined that the affected protection channel (PY536) would have isolated main steam line in about 28 seconds. Thus, the SG C P536 protection channel trip setting remained functional with respect to the TS requirements.

The inspectors determined that NextEra adequately implemented the corrective action process following the discovery of the issue. NextEra completed an appropriate operability evaluation and initiated corrective action to satisfy the TS requirements. Detailed engineering and reportability evaluations were performed to determine corrective actions. The evaluations concluded that the misplaced jumper did not impact plant operations. The inspectors determined that corrective actions were timely and appropriate to prevent recurrence of the issue.

40A3 Event Follow Up (71153 – 1 sample).1 (Closed) LER 05000443/2009002, Appendix R Procedure Issue

This LER was submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) concerning an unanalyzed condition that was discovered on October 23, 2009.

License condition F of the Seabrook license requires in part that NextEra implement and maintain in effect all provisions of the approved fire protection program as described in the Seabrook's Fire Protection of Safe Shutdown Capability Report. The LER described NextEra's discovery that the method for maintaining containment habitable following a postulated fire in Fire Areas CB-F-1A-A and CB-F-1B-A, as described in the Seabrook Appendix R Report, did not support placing the plant in cold shutdown as required (CR208823). According to report Sections 3.2.7.2.B.3 and 3.2.7.3.B.3, the containment must remain habitable to allow operator access to manually operate reactor coolant and residual heat removal system valves needed to place the plant in cold shutdown within 72 hours. To maintain the containment habitable for entry, at least one primary component cooling water (PCCW) train must be operated to cool the containment fan coolers. PCCW is also required to cool the in-containment air compressors SA-C-4A/4B that provide air to operate the air operated valves that supply PCCW cooling water to the air compressors and containment fan coolers.

To provide the air needed to open the PCCW containment isolation valves and restore cooling to the air compressors and the containment coolers, the Appendix R Report required operators to start a containment air compressor without cooling water. However, starting the compressor without cooling water would cause the compressor cylinders to overheat. As a result, when cooling water was directed to the overheated cylinders after the PCCW containment isolation valves were opened, the compressor would be significantly damaged. This could result in the loss of PCCW to containment and the ability to maintain containment habitability. Although plant procedures directed the operator to use IA-V530 to connect the instrument air system outside containment with the air system inside containment, this method was inconsistent with the Appendix R Report and further did not consider the potential impact of the fire on IA-V530 solenoid operator.

NextEra recognized this deficiency in October 2009 while the plant was in cold shutdown for refueling. The issues were resolved prior to plant startup in November 2009 by revising the Appendix R Report (UFCR 09-029) and plant procedures to credit using alternate means to restore air and cooling water to containment. This method used plant equipment that was unaffected by the fire that initiated the postulated event. Specifically, procedures were revised to have the operator open valve IA-V50 to cross connect the instrument air system outside containment and supply the air system inside containment. This allowed the PCCW system to remain in operation during the event to cool containment heat loads. Plant procedures were enhanced to reflect this method (OS1200.01), and to stage equipment in the Appendix R safe shutdown locker (OX1400.03) that was needed to operate IA-V530 without electric power.

The LER also reported a missed opportunity to correct the faulted Appendix R Report in 1994 when a review by the independent safety engineering group identified the vulnerability. Although plant procedures were enhanced, no action was taken at that time to modify the plant or address the Appendix R Report because plant staff did not

recognize the issue as a potential license condition F compliance issue. NextEra determined that the root cause was the use of a system outside the corrective action program that did not contain a sufficient level of review to ensure reported conditions were properly evaluated and corrected in a timely manner. Since 1994, NextEra has consolidated the tracking of all plant issues in a single corrective action program.

The inspectors reviewed the accuracy of the LER and verified compliance with the reportability requirements in 10 CFR 50.73. The LER concerned a condition that was a violation of NRC requirements. The enforcement aspects of the NRC review of this event are described in Section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 Closed - NRC Temporary Instruction 2515/177 - Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems

a. Inspection Scope

The inspectors performed this inspection in accordance with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems," for Seabrook Station, Unit No. 1. The NRC staff developed TI 2515/177 to support the NRC's confirmatory review of licensees' response to NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems." The Office of Nuclear Reactor Regulation (NRR) documented completion of their review of NextEra's GL 2008-01 response in a closure letter dated December 14, 2009 (ADAMS Accession No. ML093430110). Based on the review of NextEra's GL 2008-01 response letters, the NRR staff provided guidance on TI inspection scope to the regional inspectors. The inspectors used this specific inspection guidance along with the TI to verify that NextEra implemented or was in the process of acceptably implementing the commitments, modifications, and programmatically controlled actions described in their GL 2008-01 response. The inspectors verified that the plant-specific information (including licensing basis documents and design characteristics) was consistent with the information used by NRR in its assessment and that it supported a conclusion that the subject systems' operability was reasonably assured.

The inspectors reviewed a sample of isometric drawings and piping and instrument diagrams (P&IDs), and conducted selected system piping walkdowns to verify that NextEra had drawings that reflected the subject system configurations and UFSAR descriptions. Specifically, the inspectors verified the following related to the sample of isometric drawings for the high pressure safety injection (HPCI), residual heat removal (RHR), containment building spray and charging systems.

- High point vents were identified
- High points that did not have vents were documented in engineering drawings and evaluated for periodic ultrasonic testing (UT) measurements

- Other areas where gas could accumulate and potentially impact subject system operability, such as at orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably evaluated in engineering reviews or had UT points that would detect void formation
- Branch lines and fittings were clearly identified

The inspectors conducted detailed walkdowns of portions of the above systems to reasonably assure the acceptability of NextEra's drawings utilized during their review of the GL. The inspectors verified that NextEra conducted walkdowns of their HPSI, RHR, containment spray and charging systems to confirm that system orientations and vents, in combination with instructions, procedures, tests, and training, would ensure that each system was sufficiently full of water to assure operability as required. The inspectors reviewed NextEra's methodology for the determination of system piping high points, identification of negative sloped piping, and calculations of void sizes based on UT equipment readings and piping size to ensure NextEra's methods were reasonable. The inspectors reviewed engineering analyses associated with the development of acceptance criteria for as-found voids within system suction and discharge piping. The review included NextEra engineering assumptions for void transport and acceptability of void fractions at the inlet to the selected pumps.

The inspectors reviewed a sample of NextEra's procedures used for filling and venting the associated GL systems to verify that the procedures were effective in venting or reducing voiding to acceptable levels. The inspectors verified that NextEra's specified UT surveillance frequencies were consistent with NextEra's TS bases, and the UFSAR. The inspectors reviewed a risk-informed sample of GL 2008-01 response-related UT results to verify that NextEra adequately implemented their associated procedures, appropriately documented test results, trended gas found as required by their guidance, and provided reasonable assurance that the subject systems remained operable. The inspectors also performed a walkdown with NextEra personnel to observe and ensure field calibration techniques for UT equipment were consistent with equipment capabilities assumed in the design analyses. The inspectors also observed a sample of six system high point UT measurements and compared the results with the surveillance test acceptance criteria for the selected high points to ensure no voiding existed.

The inspectors reviewed various corrective action program documents to verify that selected actions described in NextEra's nine-month and supplemental submittals were acceptably documented including completed actions and the implementation schedule for incomplete actions. Additionally, the inspectors reviewed NextEra's evaluations and corrective actions for various issues relative to their findings during their GL 2008-01 review. This review was performed to ensure NextEra appropriately evaluated and adequately addressed any gas voiding concerns, including the evaluation of operability for gas voids discovered in the field. The inspectors sampled NextEra's training documents, specifically with respect to operations training, to assess if appropriate training had been provided to the operations staff to ensure appropriate awareness of the effects of gas voiding. The inspectors also discussed gas voiding concerns with design and system engineers to assess their awareness of gas voiding issues and the potential impacts, as well as the effectiveness of NextEra's training. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified. This TI is closed.

4OA6 Meetings, including Exit

On January 14, 2010, the inspectors presented the results of the TI 2515/177 inspection to Mr. Paul Freeman and other members of the NextEra staff. The inspectors also confirmed with NextEra that no proprietary information was reviewed by inspectors during the course of the inspection.

On April 8, 2010, the resident inspectors presented the results of the first quarter routine integrated inspections to Mr. Paul Freeman and Seabrook Station staff. The inspectors also confirmed with NextEra that no proprietary information was reviewed by inspectors during the course of the inspection.

No proprietary information is presented in this report.

4OA7 Licensee-Identified Violations

The following violation of NRC requirements was identified by NextEra. It was determined to have very low significance (Green) and to meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation.

License condition F of the Seabrook license requires in part that NextEra implement and maintain in effect all provisions of the approved fire protection program as described in the Seabrook's Fire Protection of Safe Shutdown Capability Report. The Seabrook Appendix R Report Sections 3.2.7.2.B.3 and 3.2.7.3.B.3, stated that the containment must remain habitable to allow operator access to manually operate reactor coolant and residual heat removal system valves needed to place the plant in cold shutdown within 72 hours. Contrary to the above, NextEra did not ensure that systems needed to maintain the containment habitable during certain postulated fire scenarios remained operable. Specifically, the method described in the Appendix R Report for maintaining containment habitable following a postulated fire in Fire Areas CB-F-1A-A and CB-F-1B-A, did not support placing the plant in cold shutdown. For a postulated fire in these areas in order to restore cooling water to containment air coolers, the report directed operators to start a containment air compressor without cooling water. This would cause the compressor cylinders to rapidly overheat causing significant damage to the compressor that would prevent restoration of containment air cooling. This issue is also discussed in Section 4OA3 above. This finding is of very low safety significance (Green) because per IMC 0609, Appendix F, Attachment 1, Section 1.3.1, a finding that only affects the ability to achieve and maintain cold shutdown screens to green with no further analysis.

ATTACHMENTS: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Arn, Engineering
J. Ball, Maintenance Rule Coordinator
R. Belanger, Design Engineer
B. Brown, Plant Engineer
P. Brangiel, Plant Engineer
V. Brown, Senior Licensing Analyst
K. Browne, Operations Manager
R. Campo, Plant Engineer
M. Collins, Design Engineering Manager
J. Esteves, Design Engineer Systems
C. Finnegan, Design Engineer
P. Freeman, Site Vice President
M. Hansen, Maintenance Manager
R. Jamison, Design Engineer Electrical
G. Kim, Risk Analyst
E. Metcalf, Plant General Manager
M. Lipman, Plant Technician
T. Manning, Engineering
B. McAllister, SW System Engineer
N. McCafferty, Plant Engineering Manager
E. Metcalf, Plant General Manager
M. O'Keefe, Licensing Manager
R. Noble, Engineering Manager
M. Ossing, Engineering Support Manager
R. Parry, Engineering Supervisor
E. Piggot, Unit Supervisor
R. Plante, Maintenance Supervisor
K. Purington, Reactor Operator
T. Rossengal, RHR System Engineer
W. Schmidt, Electrical Maintenance
T. Schulz, Design Engineer
G. Sessler, EDG System Engineer
J. Soucie, Nuclear Plant Operator
M. Taylor, Shift Manager
R. Thurlow, Maintenance Manager
J. Tucker, Security Manager
J. Varga, Reactor Operator
J. Walsh, CVCS System Engineer
N. Walts, Unit Supervisor
P. Willoughby, Licensing Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed:

05000443/2009002

LER Unanalyzed Condition Regarding Meeting
Appendix R Cold Shutdown Requirements
(Section 40A3.1)

Closed:

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

ON1490.06, Winter Readiness Surveillance, Revision 5
OP-AA-102-1002, Seasonal Readiness, Revision 0
OS1200.03, Severe Weather Conditions, Revision 14
OS1200.03, Severe Weather Actions, Revision 16
OS1246.02, Degraded Vital AC Power, Revision 8
OS1090.09, Station Cold Weather Operations, Revision 01
ER1.1, Classification of Emergencies, Revision 47
WO1174343, Winter Readiness Surveillance
Condition Reports 217980, 218782, 218788, 218794, 218800, 218801, 218804, 218829,
218838
UFSAR Section 2.4, 3.4, and 9.3.3, Revision 12
Station Operating Logs

Section 1R04: Equipment Alignment

Plant Engineering Guideline, PEG-252, Chemical and Volume Control System
PEG-30, Performance Monitoring Guidelines
Technical Requirements Manual, TR29, Emergency Boration
System Health Report – Chemical and Volume Control System
System Health Report - Containment Building Air
Plant Engineering Action Plan Register
Operations Logs – various
System Health Report – Diesel Generator
PID: 1-DG-B20459, 20467, 20464, 20463, 20466, 20465, 20460
UFSAR Section 8.3.1, AC Power Systems
UFSAR Sections 9.5.4 through 9.5.8 Diesel Generator Auxiliaries
WO 1202794
UFSAR Section 9.4, Air Conditioning, Heating, Cooling and Ventilation Systems
Condition Reports 2008-2010
AR 00001700, 00001761, 00002758
PID: 1-CBA-B20303, 1-CBA-B20304, 1-CBA-B20305, 1-CBA-B20307, 1-CBA-B20308
OS1023.51, Control Room Ventilation and Air Conditioning System Operation, Revision
14, Change 08

Section 1R05: Fire Protection

UFSAR Section 9.5.1 Fire Protection Systems
Fire Protection Pre-fire Strategies
DBD-FP-06r2, Fire Rated Doors, Dampers, Conduit Wrap, & Heat Shields
MX0599.06r4, 6-Month Surveillance and Post-Maintenance Inspection of Technical Requirements Fire-Rated Doors
OS1200.00Ar12, Fire Hazards Analysis for Affected Area / Zone – Appendix A
OS1200.00r12 Response to Fire or Fire Alarm Actuation

Section 1R06: Flood Protection Measures

Condition Reports
EE 04-015, Engineering Evaluation, Turbine Building Flood Protection
EE 90-050, Engineering Evaluation, Internal Flooding Through Plant Drain & Sump System
EE 97-002, Engineering Evaluation, Plant Drainage System Guidelines
C-X-1-21802, Revision 2 and Revision 3, Expansion Joint Rupture in the Circulating Water System located in the Turbine Building
OS1238.02, Turbine Building Flooding, Revision 3
UFSAR Section 3.4, Water Level (Flood) Design, Revision 12
UFSAR Section 9.3.3, Equipment and Floor Drainage System, Revision 12
DBD-PB-01, Plant Barriers, Revision 2
DCR 97-033, Condenser Pit Flood Level Switch
System Health Reports, Circulating Water System
WO 01091051, 01129479
AR 215907, 215987, 215553

Section 1R11: Licensed Operator Regualification Program

Emergency Operating Procedure E-0, ES-0.1, ES-0.2, E-3, FR-S.1, ES-1.1, ER1.1A
Procedures OS1216.01, OS1216.05, OS1201.01, OS1231.04, OS1231.05 OS1000.06
Simulator Demonstrative Exams for LORT Sessions in February and March 2010
Condition Report 219500
NT-5701-5, Crew Simulator Evaluation dated 3/16/10
Licensed Operator Regualification Training (LORT) Training Program Description

Section 1R12: Maintenance Rule Implementation

Plant Engineering Guidelines, Maintenance Rule Program Monitoring Activities
Plant Engineering Action Plan Register
Maintenance Rule Failures Evaluated in the Condition Report System
System Health Reports – PCCW, SW, EDG
Work Orders for 2008 2010
Condition Reports for 2008 – 20010
CRs 2866, 8511, 4930, 10000, 201083, 202739, 208861, 207898, 208167, 214900, 219082
Plant Engineering Action Register for DG System
Decision Matrix for A DG Lube Oil High Temperature Trip
AR214900 Evaluation of Lube Oil Temperature Shift
Root Cause Analysis for CR0810421
Notes for CR207898
WO01098761

Section 1R13: Maintenance Risk and Emergent Work

PID-1-SW-F20795, Service Water System
Work Orders 01199338, 01186439,
Condition Reports 215458, 215489,
EDE-OT003, AC Power Source Weekly Surveillance in support of the DG A outage
SM 7.10, Maintenance Rule Program, Revision 1
WM 10.1, On-Line Maintenance, Revision 3
WM-AA-1000, Work Activity Risk Management Process
NP-702, Use of Probabilistic Assessment
OP-AA-104-1007, Online Aggregate Risk, Revision 0
Maintenance Rule a(4) Risk Assessment Reports – various
eSOMS Operations logs – various
Seabrook 2009 PRA – Understanding the Risk from Operation of the Seabrook NPP

Section 1R15: Operability Evaluations

Operator Logs
Operability Determinations for CRs 211216, 214900, 219030

Section 1R18: Modifications

EC145262 - EHC skid east manifold encapsulation
WO01202456 1/8/10

Section 1R19: Post Maintenance Testing

MA3.5, Post Maintenance Testing, Revision 10
AR 214819, 214870, 214900, 215210, 214472, 214484, 214526, 214573, 214590,
214646, 217896, 218057
Plant Engineering Action Plan Register – emergency diesel generator
eSOMS Operations logs - various
OS 1023.54, Diesel Generator Building Ventilation System Operation, Revision 8
DBD-DAH-01, Diesel Generator Building Heating and Ventilation Systems
DBD-DG-01, Emergency Diesel Generator Mechanical
WO 1189131, 01186219-01, 01186219-02, 01186219-04, 1201114
Inservice Testing Database, CBS-V-43
LS0569.20, Lubrication PM and Inspections for Motor Operated Valve Actuators,
Revision 0
LS0569.03, Corrective Maintenance of Limitorque Valve Actuator Type SMB-000,
Revision 4
LS0569.15, Diagnostic Testing of Rising Stem MOVs, Revision 6

Section 1R22: Surveillance Testing

OX1456.50, Train B ESFAS Slave relay K616 Quarterly Block/Go Test, Revision 7
OX1456.01, Charging Pump Quarterly Flow and Valve Test, Revision 10
OX1416.05, Service Water Cooling Tower Pumps Quarterly and Two Year
Comprehensive Test, Revision 10
Work Orders 01192469, 01192464, 01191992
Seabrook Technical Specifications 4.05, 4.3.2.1 and 4.5.2.F
WO 1191220, 1202791, 1192155, 1192154
MX0539.50, Emergency Diesel Generator Engine 24 month Preventative Maintenance
OS1026.08, DG 1A Maintenance Starting, Revision 13
OX1436.08, Startup Feed Pump Quarterly Surveillance, Revision 11
OX1436.02, Startup Feed Pump Monthly Valve Operability Surveillance, Revision 1

DGA10, DG A Restart Readiness Challenge Meeting, January 14, 2010
DGB10, DG B Restart Readiness Challenge Meeting, January 27, 2010
FME Recovery Plan, DG-SKD-7A Gear Case, dated January 12, 2010
AR 214529, 215151, 214467, 214473, 214529, 214575, 214584, 215458, 215760,
215797
PID-1-FW-B20686, 20687, 20688
Technical Requirements 28-3.1, ESF Pump Operability Requirements
DBD-FW-01, Design Basis Document – Feedwater System, Revision 3
DBD-EFW-01, Design Basis Document – Emergency Feedwater System, Revision 5

Section 1EP6: Drill Evaluation

Combined Functional Drills 10-01 and 10-02
Simulator Demonstrative Exams for February and March 2010
NT-5701-5, Crew Simulator Evaluation dated 3/16/10
NT-5701-1, Individual Simulator Evaluation dated x/x/x
Condition Reports 216886, 216894, 216893, 216885, 216883, 216899
ER 1.1, Classification of Emergencies, Revision 48
ER 1.1B4, Emergency Initiating Condition Matrix
ER 1.2E, Emergency Action Checklist, Revision 53
E-0, Reactor Trip or Safety Injection, Revision 48
ES-1.1, SI Termination, Revision 35
ES-0.1, Reactor Trip Response, Revision 35
OS1227.02, Steam Generator Tube Leak, Revision 15
OS1202.05, Reactor Coolant System High Activity, Revision 12
Emergency Facility Logs – various
SSEP Seabrook Station Emergency Plan

Section 40A2: Identification and Resolution of Problems

Condition Reports for the first quarter of 2010
Condition Reports 216818, 216819, 216841, 216844, 218695, 218799, 218808, 218893,
219185, 218152, 219494,
Adverse Condition Monitoring Plan
Seabrook Station Engineering Procedure EX1810.101, Rev. 09
Seabrook Station Trend Report Refueling Outage13

Section 40A3: Event Follow-up

Condition Reports 208433, 208823, 217885
Licensee Event Report 2009-002, Unanalyzed Condition Related to Meeting Appendix R
Cold Shutdown Requirement

Section 40A5: Other Activities

Calculations

C-S-1-23903, Maximum Void Size in RHR Pump Suction Piping, Rev. 3
C-S-1-84104, Maximum Void Size in Charging and SI Pump Suction Piping, Rev. 4

Corrective Action Reports

AR 00195961, AR00197548, AR 00214217, *AR00214664, *AR00214665,
*AR00214684

* AR generated as result of inspection

Design & Licensing Bases

Technical Specification 3/4.5.2. ECCS Subsystem-Taverage Greater Than or Equal to 350 Degrees Fahrenheit

Technical Specification Bases, 3/4.5. Emergency Core Cooling System

Technical Specification 3/4.6.2, Depressurization and Cooling System, Containment Spray System

Technical Specification Bases, 3/4.6.1, Primary Containment

Updated Final Safety Analyses Report Section 6.3, Emergency Core Cooling System, Rev. 11

Drawings

1-NHY-800155ISI, ISI Weld Identification RHR System Line No. 155, Rev. 6

1-NHY-801212ISI, ISI Weld Identification CBS System Line No. 1212, Rev. 7

PID-1-CBS-D20233, Containment Spray System, Rev. 32

PID-1-CS-D20725, Chemical and Volume Control Charging System, Rev. 26

PID-1-RH-D20662, Residual Heat Removal System Train A, Rev. 20

PID-1-SI-D20446, Safety Injection System Intermediate Head Injection System, Rev. 15

PID-1-SI-D20450, Safety Injection System Low Head Injection (Accumulators), Rev. 12

SS-EV-980002, Figure 13, RWST to RHR, SI and CBS Pump Suction Train A, Rev. 3

SS-EV-980002, Figure 18A, RHR to SI Pump Suction, Rev. 3

SS-EV-980002, Figure 23, CBS Sump CBS-TK-101A to CBS-P-9A Suction, Rev. 3

SS-EV-980002, Figure 24, CBS Sump CBS-TK-101B to CBS-P-9B Suction, Rev. 3

SS-EV-980002, Figure 25, CBS Sump CBS-TK-101A to RH-P-9-A Suction, Rev. 3

Engineering Evaluations

EE-08-26, Engineering Evaluation of GL 2008-01, Rev. 0

EE-09-012, Engineering Evaluation GL 2008-01, Rev. EE-00

EE-99032, Maximum Allowable Gas Bubble Size at ECCS High Points, Rev. 5

SS-EV-980002, Evaluation of ECCS High Points, Rev. 3

Miscellaneous

Draft Revision 2 to NRC Staff Criteria for Gas Movement In Suction Lines and Pump Response to Gas, dated March 26, 2009

SBK-L-08179, Seabrook Station Nine-Month Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, And Containment Spray Systems, dated October 14, 2008

SBK-L-09205, Seabrook Station Response to Request for Additional Information Regarding

NRC GL 2008-01, dated October 6, 2009

Seabrook Station, Unit No. 1- Request for Additional Information Regarding Response to GL 2008-01 (TAC NO. MD7878), dated September 1, 2009

Operating Experience

NRC Generic Letter 2008-01: Managing Gas Accumulation in Emergency Core Cooling, Decay

Heat Removal and Containment Spray Systems, dated 1/11/08

NRC Information Notice 94-36: Undetected Accumulation of Gas in Reactor Coolant System, dated 5/24/94

Procedures

EDI 30570, Ultrasonic Equipment Calibration and Examination for Water Solid Evaluations,

Rev. 1

OS1002.01, Filling and Venting the Charging, Letdown, Seal Injection and Excess Letdown

Portions of the CVCS, Rev. 11

OS1005.07, SI Fill and Vent, Rev. 4

OS1006.01, Fill and Vent of CBS and RHR System Train A, Rev. 6

OS1013.03, Residual Heat Removal Train A Startup and Operation, Rev. 16

OX1456.02, ECCS Monthly System Verification, Rev. 11, performed 12/12/09

LIST OF ACRONYMS

AC	alternate current
ADAMS	Agency-wide Documents Access and Management System
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CR	condition reports
EDG	emergency diesel generator
GL	generic letter
HPCI	high pressure coolant injection
IESG	independent safety engineering group
IMC	Inspection Manual Chapter
LER	Licensee Event Reports
MR	maintenance rule
MSPI	mitigating systems performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
PARS	Publicly Available Records
PCCW	primary component cooling water
P&ID	pipng and instrument diagram
PMT	post-maintenance testing
RHR	residual heat removal
SG	steam tenerator
SSC	structures, systems or components
TI	temporary instruction
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
UT	ultrasonic testing
WO	work order