

Seabrook 1

4Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Correct a Condition Adverse to Quality for the L-5 FICI Connection

A self revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Actions,” was identified because the high pressure Swagelok fitting for the L-5 fixed in-core detection instrument failed and caused an unisolable reactor coolant leak. Specifically, NextEra did not implement timely and effective corrective actions to address a degraded Swagelok fitting associated with the L5 in-core instrument connection that was identified as a condition adverse to quality in 2006. As a result, the fitting continued to degrade and failed on October 21, 2012. NextEra entered this into their corrective action program as AR 01815351 and implemented immediate corrective actions to cut the connection for the L-5 instrument, as well as two others showing signs of leakage, and capped the tubes prior to recommencing start-up.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone’s objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Additionally it is similar to example 4.d of Inspection Manual (IMC) 0612, Appendix E, because this was a failure to implement a corrective action that did have a safety impact, because the fitting failed and caused a 4 gpm non-isolable leak from the reactor coolant system. The inspectors evaluated the finding using IMC 0609, Attachment A, because the operational impact occurred after the residual heat removal pump was secured for start-up. The inspectors determined that the finding was of very low safety significance (Green) because the deficiency would not result in exceeding the small loss of coolant accident (LOCA) leak rate and would not have affected other systems used to mitigate a LOCA. This finding has a cross-cutting aspect in the area of Human Performance, Resources, because actions were not taken to maintain long term plant safety by minimization of long-standing equipment issues. Specifically, NextEra did not manage the ongoing degradation of the L-5 in-core instrument connection fitting connection while long term corrective actions were implemented.

Inspection Report# : [2012005](#) (*pdf*)

Significance: G Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Adequately Implement Procedure Led to Reactor Coolant System Leakage from Pressurizer Safety Valve Flange

A self-revealing, non-cited violation of technical specification 6.7.1, “Procedures and Programs,” was identified after the control room received a high discharge temperature alarm for pressurizer relief valve RC-V-116 while pressurizing the reactor coolant system during start-up preparations on October 21, 2012. Specifically, NextEra personnel did not properly implement maintenance procedure MS0519.17, “Crosby Pressurizer Mechanical Safety Valve Removal and Installation.” This led to the reactor coolant system leakage past the RC-V-116 flange gasket that caused the high discharge temperature alarm. NextEra entered this into their corrective action program as AR1815307 and implemented immediate corrective actions to retorque the bolts and replace the gasket on RC-V-116.

The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, because NextEra personnel did not properly implement procedure MS0519.17, eight bolts on the inlet flange of pressurizer RC-V-116 were not adequately torqued. This resulted in reactor coolant system leakage

during preparations for reactor start-up on October 21, 2012, and required NextEra operators to return the plant to cold shutdown. Additionally, this was similar to more-than-minor example 2.e in IMC 0612, Appendix E, because the procedure non-compliance resulted in a negative safety consequence in that it impacted the ability of the flange to perform its function to prevent reactor coolant system leakage. The inspectors evaluated the finding using IMC 0609, Attachment A, because the operational impact occurred after the residual heat removal pump was secured for start-up. The inspectors determined that the finding was of very low safety significance (Green) because the deficiency would not result in exceeding the small loss of coolant accident (LOCA) leak rate and would not have affected other systems used to mitigate a LOCA. This finding has a cross-cutting aspect in the area of Human Performance, work practices, because personnel did not follow the procedures. Specifically, when tensioning the bolts on the pressurizer relief valve RC-V-116 inlet flange, NextEra personnel did not verify there was a gap for eight of the twelve bolts on the inlet flange of the valve as required by maintenance procedure MS0519.17.

Inspection Report# : [2012005](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Scaffold Installed with Insufficient Separation to Safety-Related Equipment

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, “Procedures,” because NextEra did not ensure that adequate separation was maintained between temporary scaffolding and safety-related equipment. Specifically, the inspectors identified numerous scaffolds installed in the plant with less than the minimum standoff distance to safety-related equipment specified in NextEra procedures and no engineering evaluation to support the deviation. NextEra entered this NCV into their CAP as CR 1804255.

This performance deficiency was considered more than minor because it affected the protection against external factors attribute of the Mitigating Systems cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, NextEra routinely did not evaluate scaffold installations when insufficient separation to safety-related equipment was provided. Additionally, it was similar to example 4.a in IMC 0612, Appendix E, “Examples of Minor Issues,” which states that the issue of failing to appropriately evaluate scaffold installation as required by procedures is more than minor if the licensee routinely failed to perform engineering evaluations. The issue was evaluated in accordance with IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power” and determined to be of very low safety significance (Green) since it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic event. This finding is related to the cross-cutting area of Human Performance - Work Practices because NextEra personnel did not follow scaffold installation procedures when they routinely installed scaffold within one-half inch of safety-related equipment without an engineering evaluation.

Inspection Report# : [2012004](#) (pdf)

Significance:  Jan 20, 2012

Identified By: NRC

Item Type: FIN Finding

Inadequate Operability Determination for Degraded Concrete Structures Housing Safety-Related Equipment

The inspectors identified a finding in that NextEra failed to fully evaluate potential structural and seismic response impacts in accordance with the requirements in NextEra procedure EN-AA-1001 after identifying a degraded and nonconforming condition related to degraded conditions for some safety related structures due to Alkali-Silica Reaction (ASR). Specifically, the evaluation did not consider the following effects due to changed properties of concrete, as reflected in reduced values of the modulus of elasticity as measured directly from concrete core samples: 1) building natural frequency in the dynamic response; 2) performance of anchorages and embedment of systems and components attached to the structures; and, 3) shear strength or capacity of affected structures and the dynamic/flexural response especially those buildings without corresponding shear reinforcement.

The failure to conduct adequate prompt operability determinations per procedure EN-AA-203-1001 for degraded and nonconforming conditions associated with ASR was a performance deficiency relative to a self imposed standard. Specifically, the prompt operability determinations conducted following the identification of ASR in safety-related structures did not completely analyze the effects of the reduced modulus of elasticity on the dynamic and flexural response of the structures to seismic events for certain conditions. This performance deficiency was associated with the design control aspect of the Mitigating Systems cornerstone; and, based on a comparison to Example 3.i of Appendix E of IMC 0612, it was determined to be more than minor. Specifically, the failure to conduct adequate operability determinations adversely affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences because it required an additional evaluation to confirm that the design bases was met. The issue was evaluated using IMC 0609, "significance Determination Process," and was determined to be of very low safety significance (Green). Specifically, when evaluated under IMC 0609, Attachment 4, the performance deficiency was a design or qualification deficiency confirmed not to result in an actual loss of safety function. The finding had a cross cutting aspect in the area of problem identification and resolution, related to ensuring that issues potentially impacting nuclear safety are thoroughly evaluated. Specifically, NextEra did not fully evaluate conditions adverse to quality, including evaluating the effects of the reduced concrete modulus of elasticity for impact on operability of the affected structures.

Inspection Report# : [2011010](#) (*pdf*)

Significance: N/A Jan 20, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Complete a 50.59 Screen for EC272057

The inspectors identified a Severity Level IV non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) 50.59(dX1), "Changes, Tests, and Experiments," because NextEra did not adequately evaluate a "use-as-is" determination, resulting in a defacto design change, for certain ASR impacted safety related structures. Specifically, NextEra did not complete a 10 CFR 50.59 evaluation, to ensure that the identified reduction in concrete modulus of elasticity did not present a more than minimal increase in the likelihood of the occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the updated safety analysis report (USAR) prior to implementing changes to the facility as described in the engineering change EC272057 issued on April 25, 2011.

The failure to evaluate changes to the facility as described in EC272057 was contrary to 10 CFR 50.59(d)(1) and was a performance deficiency warranting a significance evaluation in accordance with the NRC Enforcement Manual for Traditional Enforcement and IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." The violation was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because it could not reasonably be determined that the changes would not have ultimately required prior NRC approval. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance (Green), because it was a design or qualification deficiency confirmed not to result in an actual loss of safety function and because further evaluation determined that the structures remained operable despite the degraded modulus condition. The finding had a cross cutting aspect in the area of human performance work practices, because NextEra personnel did not follow procedures. Specifically, NextEra personnel did not follow the requirements of Section 5.2.2 of the 5059 Resource Manual when preparing the 50.59 screen for EC272057.

Inspection Report# : [2011010](#) (*pdf*)

Barrier Integrity

Significance:  May 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate 10 CFR 50.59 Evaluation

The team identified a Severity Level IV non-cited violation of 10 CFR 50.59 in that NextEra made changes to an

analysis listed in the Technical Specifications (TS) without obtaining a license amendment. The team found that prior to replacing incore probe detectors used to determine neutron and gamma flux in the core NextEra added two correction factors to the S3FINC code in order to adjust the signals produced by the detectors. The changes were made under the 10 CFR 50.59 process. The team also found that a third correction factor had been applied in 2002 to address a divergence between the measured and predicted flux levels. In this case the changes were made without using the 10 CFR 50.59 process. The team's review determined that in 1992 the licensee had evaluated the methodology used to convert the detector signal to a flux map via YAEC-1855PA, Seabrook Station Unit 1 Fixed Incore Detector System Analysis. This analysis had been submitted to the NRC as part of License Amendment Request 92-14. The NRC had evaluated and approved the analysis in a Safety Evaluation associated with License Amendment 27. The analysis was then listed in Section 6.8.1.6.b.10 of the TS. The team determined that the changes impacted the analysis and assumptions used as the basis for the conclusions reached in the NRC Safety Evaluation. Following identification of the issue, NextEra entered the issue into the corrective action program, performed an operability assessment, and planned to correct the discrepancy between the license and plant configuration.

The team determined that the failure to perform an assessment of the changes made to the plant in 2002 and that the incorrect conclusion reached in the 2010 10 CFR 50.59 evaluation constituted a performance deficiency. Because the issue impacted the ability of the NRC to perform its regulatory function, traditional enforcement was used to disposition the violation. The issue was considered more than minor because the changes involved a change to the TS, and the NRC review and approval was required prior to implementing. The team used IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," to evaluate the risk significance of the issue. The team determined the issue adversely impacted the Barrier Integrity Cornerstone and had very low safety significance (Green) per Table 4a in the Phase 1 screening because it only potentially impacted the fuel barrier. (Section 1R17.2.7.b)

Inspection Report# : [2012007](#) (*pdf*)

Emergency Preparedness

Significance: G Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Process Necessary for Notification of OROs during an Emergency Declaration

A self-revealing NCV of 10 CFR 50.47(b)(5) and the requirements of Section IV.D.3 of Appendix E to 10 CFR 50 was identified on June 13, 2012, because NextEra did not notify the state of Massachusetts within 15 minutes of declaring an emergency at the Seabrook Station. Specifically, the inspectors determined that NextEra did not maintain the site's off-site notification process in a manner that ensured that the RSPS function described by 10 CFR 50.47(b)(5) could be met with the multiple equipment malfunctions that occurred between June 12 and June 14, 2012. The issue was entered into NextEra's corrective action program as CR 1775909.

The performance deficiency was considered more than minor because it was associated with the Emergency Preparedness (EP) cornerstone attributes of Procedure Quality and Facilities and Equipment, and affected the cornerstone objective of ensuring that a licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, EP equipment was not treated as equipment important to safety and thus marginal equipment performance with regard to the NAS was tolerated, and the notification process implementing procedure was cumbersome such that it did ensure timely notification when presented with equipment failures. The inspectors assessed the issue, related to the notification process, using the Emergency Preparedness Significance Determination Process (Appendix B to IMC 0609) and determined the finding to be of very low safety significance (Green). This finding is related to the cross-cutting area of Problem Identification and Resolution - CAP because NextEra did not consistently enter issues with communications equipment necessary for EP purposes into the station's CAP such that immediate corrective actions could be taken to ensure the RSPS function was met.

Inspection Report# : [2012004](#) (*pdf*)

Significance: **W** Apr 19, 2012

Identified By: NRC

Item Type: AV Apparent Violation

Failure of Exercise Critique to Identify an RSPS Weakness as a DEP PI Opportunity Failure

The NRC identified an apparent violation (AV) for the licensee's exercise critique process not properly identifying a weakness associated with a risk-significant planning standard (RSPS) that was determined to be a Drill/Exercise Performance (DEP) Performance Indicator (PI) opportunity failure during a full-scale exercise. The AV is associated with emergency preparedness planning standards 10 CFR 50.47(b)(14) and 10 CFR 50.47(b)(5) and the requirements of Section IV.F.2.g of Appendix E to 10 CFR Part 50. This finding was entered into the licensee's corrective action program.

The failure of NextEra to identify the exercise weakness related to an incorrect protective action recommendation (PAR) during their exercise critique was a performance deficiency that was reasonably within NextEra's ability to foresee and prevent. The finding is more than minor because it is associated with the emergency response organization attribute of the Emergency Preparedness Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. This finding was determined to potentially have greater-than-Green safety significance because the licensee's exercise critique process did not properly identify a weakness associated with a RSPS that was determined to be a DEP PI opportunity failure during a biennial full-participation exercise. The finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program, in that NextEra personnel did not identify a RSPS issue completely, accurately, and in a timely manner commensurate with the safety significance. Specifically, during the biennial full-participation exercise evaluation Next Era failed to identify a weakness.

Inspection Report# : [2012503](#) (*pdf*)

Occupational Radiation Safety

Significance: **G** Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Calibration of Respirator Fit Test Equipment

Inspectors identified an NCV of Technical Specification (TS) 6.7.1.a, "Procedures and Programs," which requires that written procedures be established and implemented, to include administrative procedures, which includes radiation protection procedures. Specifically, procedure HD 0965.10, "Respirator Fit Testing Using TSI Portacount Plus," Revision 10, did not specify a calibration frequency requirement for the respirator fit test equipment. The equipment vendor recommended annual calibration frequency, which was exceeded by over two years, and the current as-found condition of the specified equipment when tested was found out of calibration. This issue was entered into NextEra's CAP as CR 1785134.

This performance deficiency was determined to be more than minor, because it was associated with program and process attribute of the Occupational Radiation Safety cornerstone and affected its objective to ensure adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, the respirator fit testing was being used to certify respirator protection factors of workers which were relied upon to provide protection of workers due to airborne radioactivity during the previous refueling outage. Additionally, it was similar to example 6.b in IMC 0612, Appendix E, "Examples of Minor Issues," which states that failing to calibrate radiation instruments was more than minor if the as-found condition was not within the acceptance criteria for the calibration and did not provide a conservative measurement. The issue was evaluated using IMC 0609, "Significance Determination Process" (SDP), and was determined to be of very low safety significance. Specifically, when evaluated with IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the performance deficiency was not an ALARA issue, did not involve an overexposure or a potential overexposure, and did not impact NextEra's ability to assess dose. The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution - CAP because NextEra did not

identify that vendor recommended calibration requirements had not been met or evaluated when this equipment was returned by the vendor for routine cleaning.

Inspection Report# : [2012004](#) (*pdf*)

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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