

Seabrook 1

4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Loss of DC Control Power to Switchyard #2

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)]

Inspection Report# : [2013002](#) (*pdf*)

Mitigating Systems

Significance: G Oct 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Operability Determination Regarding Service Water Leakage and Associated TS Violation

The inspectors identified an NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and an associated violation of technical specification (TS) 3.7.4, because NextEra did not follow the requirements of station procedure EN-AA-203-1001, "Operability Determinations/ Functionality Assessments." Specifically, NextEra did not properly evaluate and document an

adequate basis for operability, when relevant information was available that would have challenged the “reasonable expectation of operability” threshold for a service water (SW) through-wall leak that degraded incrementally from weepage on August 7, 2013, to a significantly larger leak on August 28, 2013. NextEra completed a temporary non-code repair of the flaw with the installation of a weldolet on September 1, 2013, following NRC review and approval of a relief request. Additionally, under the corrective action process, NextEra completed apparent cause evaluations for the piping flaw, as well as engineering decision-making during the non-destructive examinations and evaluations, and are currently evaluating the fundamental issue of decision-making regarding TS operability and TS compliance.

This performance deficiency is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the prompt operability determination incorrectly concluded the “B” cooling tower (CT) SW header and the “B” SW (ocean) pumps were operable, but degraded, versus inoperable. IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” and Exhibit 4, “External Events Screening Questions,” were used to assess this issue and a detailed risk evaluation was completed. The inspectors assumed that functionality of the SW system, based upon the as-found wall thinning, would only be challenged when aligned to the cooling tower basin when the SW piping is subjected to a higher overall system pressure. This system configuration is used to mitigate a seismic event following the loss of the normal SW intake structure. Based on low probability of SW piping system failure due to a seismic event and the overall low likelihood of a seismic event of a magnitude sufficient to cause structure, system, and component (SSC) damage, this finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance associated with the decision making component because NextEra failed to 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 it is unsafe in order to disapprove the action. Specifically, NextEra personnel had not considered relevant information in the form of UT data and actual leak propagation to conclude that they no longer had “reasonable assurance of operability” and did not declare the “B” header of ocean and CT SW systems inoperable [H.1(b)].

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Apr 26, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Verify Adequate Fault Protection for Safety Related Equipment from Non-Safety Related Load Fault

The team identified a finding of very low safety significance involving a non-cited violation of the 10CFR 50, Appendix B, Criterion III, “Design Control,” in that, NextEra did not appropriately select and review, for suitability of application, a safety-related over-current protection device for a safety related power panel (EDE-PP01B). Specifically, NextEra did not consider the effects the current-limiter function of safety related inverters, which supplied the safety related power panel, would limit fault current at the over-current protection device. As a result, the safety related over-current protective devices would not have prevented a postulated fault of a non-safety related load, supplied from the safety related power panel, from causing a momentary loss of voltage to the power panel and all associated safety related loads. In response, NextEra entered the issue into their corrective action program and performed a preliminary analysis that determined an existing non-safety related fuse would provide adequate over-current protection. NextEra credited the use of this fuse as an interim compensatory measure in their operability assessment in order to conclude the system was operable. The team determined the analysis and associated assessment were reasonable.

The finding was more than minor because it was similar to Example 3.j of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and was associated with the Design Control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to

initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance because the issue was a qualification deficiency that did not result in inoperability of the system.

This finding did not have a cross-cutting aspect because it was determined to be a legacy issue not indicative of current licensee performance.

Inspection Report# : [2013008](#) (*pdf*)

Significance:  Apr 26, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Condensate Storage Tank Water Level Above Limits of Seismic Qualification

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that NextEra did not assure the seismic design requirements for Condensate Storage Tank (CST) were translated into specifications and procedures. Specifically, the team found that NextEra's seismic design calculations for the CST was based, in part, on a maximum tank level. The maximum tank level was used to ensure that the floating cover inside the CST would not strike the top of the tank. NextEra engineers had concluded that this impact could cause a failure of the CST or cover. However, the team identified that the high level alarm and operating procedure limits for the tank were above the level credited in the calculation. Additionally, the team determined that NextEra routinely operated the CST tank above the maximum tank level assumed in the calculation. Following identification NextEra entered it into their corrective action program and proceduralized a lower maximum allowable water level for the CST to prevent a seismically induced impact of the floating cover on the tank.

The finding is more than minor because it is associated with the protection against external factors (seismic event) attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. The finding involved the loss or degradation of equipment so a detailed risk evaluation (DRE) was performed. Based upon the DRE, the finding was determined to be of very low safety significance.

This finding was not assigned a cross-cutting aspect because the underlying cause was not indicative of current performance.

Inspection Report# : [2013008](#) (*pdf*)

Significance:  Apr 26, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Perform Preventative Maintenance on the Supplemental Emergency Power System

The team identified a finding of very low safety significance, in that NextEra did not perform preventative maintenance (PM) on supplemental emergency power system (SEPS) components as required by the approved engineering design modification for SEPS. As a result, the system's reliability to respond to a loss of off-site power event had not been maintained at a high confidence level, as assumed in NextEra's design and probabilistic risk analyses. In response, NextEra entered the issue into their corrective action program, evaluated the effect on equipment reliability for the never performed PMs, and implemented an accelerated schedule to complete the missed PM tasks.

The finding was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. In addition, the finding was associated with the Procedure Quality and Equipment Performance attributes of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. The team determined the finding was of very low safety

significance because it was a qualification deficiency that was determined not to affect availability at the time of discovery.

This finding had a cross-cutting aspect in the area of Human Performance, Decision Making, because the quarterly system health report stated the failure to complete long term SEPS PMs was a serious threat to equipment reliability. Inspection Report# : [2013008](#) (*pdf*)

Significance:  Apr 26, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Primary Component Cooling Water System Unavailable Following a Seismic Event

The team identified a finding of very low safety significance involving a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control", in that NextEra did not verify the design basis for the primary component cooling water (PCCW) had been translated into specifications and procedures. Specifically, the team found that NextEra had produced engineering evaluations and maintenance procedures that allowed a limited amount of leakage past the "B" train PCCW isolation valves. The team noted NextEra used these documents to conclude that a 2.5 gpm leak rate identified in April 2011 and a 4 gpm leak identified in October 2012 on "B" train valves were acceptable. The team reviewed the design and licensing basis of the "B" train and determined the system did not have a safety related refill capability and, therefore, was required to be leak tight. The team determined that, with leakage past the valves, water would need to be added to the system every few hours in order to ensure the system would be available. The team concluded that following certain design basis events a safety related refill system would not be available resulting in loss of the PCCW system. Following identification of the issue NextEra entered it into their corrective action program and evaluated the operability of systems- concluding it was operable. The team review of the evaluation determined it to be reasonable.

The finding is more than minor because it is associated with the protection against external factors (seismic event) attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. The finding involved the loss or degradation of equipment designed to mitigate a seismic initiating event and triggered the use of Exhibit 4 which resulted so a DRE was performed. Based upon the DRE, the finding was determined to be of very low safety significance.

The team determined that this finding has a cross-cutting aspect in the area of Human Performance, Resources, because NextEra did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, those necessary for: complete, accurate and up-to-date design documentation, procedures, and work packages.

Inspection Report# : [2013008](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Evaluate Service Water Cooling Tower Level

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))

Inspection Report# : [2013002](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

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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