



December 11, 2009

Docket No. 50-443

SBK-L-09243

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

Seabrook Station  
Reply to a Notice of Violation; EA-09-145

References:

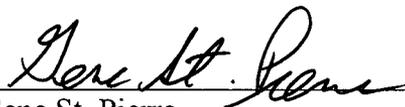
1. Seabrook Station, Unit No. 1 – NRC Inspection Report 05000443/2009007; Preliminary White Finding, dated August 28, 2009.
2. Final Significance Determination of White Finding with Assessment Followup, and Notice of Violation (NRC Inspection Report No. 05000443/2009007, Seabrook Station, Unit No. 1), dated November 12, 2009.

NextEra Energy Seabrook, LLC (NextEra Energy Seabrook), has reviewed the subject Notice of Violation and files the attached Reply to Enforcement Action 09-145 pursuant to 10 CFR 2.201.

If there are any questions regarding this letter, please contact Mr. Michael D. O'Keefe, Seabrook Licensing Manager, at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC

  
Gene St. Pierre  
Vice President North

cc: S. J. Collins, NRC Region I Administrator  
D. L. Egan, NRC Project Manager  
W. J. Raymond, NRC Senior Resident Inspector

IEOI  
NRR

**Attachment to SBK-L-09243**

Statement of Violation:

During an NRC investigation conducted between February 25, 2009 and July 16, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50 Appendix B Criterion III, "Design Control," states, in part, that measures shall be established to assure that regulatory requirements and the design basis for systems and components are correctly translated into specification and instructions. Measures shall also be established for the selection and review for suitability of application of materials and parts that are essential to the safety-related functions of the systems and components.

The Seabrook Station Design Control Manual (DCM), developed pursuant to the above to establish design control measures for safety related components, including the emergency diesel generators (EDG), states, in Chapter 2, Section 8.0, that the Maintenance Support Evaluation (MSE) is the design control measure to be implemented in support of maintenance. When preparing the MSE, the DCM requires that the design inputs and interdisciplinary review guidelines on Figures 4-1-1 through 4-1-14 shall be used to prepare and develop the design change and understand the areas impacted. DCM Figure 4-1-1, Design Inputs, and Figure 4-1-3, Independent Reviewer Guidelines, requires that the design shall consider mechanical requirements such as stresses and vibration; whether materials are suitable for the application; credible failure modes of connected equipment; and, shall account for equipment performance history.

Contrary to the above, on January 31, 2009, NextEra Energy Seabrook, LLC, completed Work Order 0821400 on the B EDG without adequately establishing measures to assure that regulatory requirements and the design basis for systems and components were correctly translated into specifications and instructions. Specifically, design change 08MSE211, implemented by Work Order, to modify and repair a two bolt flange (joint JTR005) on the B EDG right bank turbocharger, did not adequately: (1) control welding stresses during repair, assure post weld flange alignment was acceptable, or address the impacts of known vibrations on flange performance and gasket compression; (2) address the suitability of gasket materials relative to flange specific conditions (cupping and bowing); and, (3) consider the flange performance history and potential failures to account for equipment performance history and credible failure modes of connected equipment. As a result, the B EDG turbocharger flange JTR005 failed during the B EDG operation on February 25, 2009, causing a rapid loss of jacket cooling water and the EDG being declared inoperable.

This violation is associated with a White Finding.

NextEra Energy Seabrook's Reply to the Notice of Violation

I. Reason for Violation

The root cause of the event was determined to be an inadequate gasket design for the turbocharger coolant outlet flange. The design change (MSE) was prepared, reviewed and approved without adequately assessing the following design inputs:

- The joint's performance history
- Evaluation of reported extrusion of the gasket
- Possible failure modes for the new gasket design

This inadequate assessment of design inputs was due to a failure to implement the Design Control programmatic requirements. This resulted in the selection of a gasket design which was not appropriate for the application.

Contributing to the root cause were two process deficiencies:

1. The Challenge Board Process for EDG maintenance did not require the basis for maintenance activities that implement design changes.
2. Additional requirements were added to the work control program to ensure the EDG is treated as a system and not as a component because the EDGs are a high risk/low margin system. While these controls historically have been successful in minimizing maintenance related issues from adversely impacting the EDGs, they did not require the same level of control to be applied to engineering processes involving the EDGs:
  - The MSE process did not require consideration of new failure modes.
  - The troubleshooting process did not include additional barriers for high risk / low margin systems.

II.a. Corrective Actions Taken

1. On June 4, 2009, the Seabrook Site Engineering Director issued a memo to all Engineering personnel outlining expectations to address equipment performance history, installation tolerances, and to perform failure modes analysis for design changes. In addition, the memo provided expectations for the conduct of challenge boards for any Maintenance Support Package (MSP)[succeeded the MSE process] associated with high risk/low margin systems.
2. On June 11, 2009, the Systems Engineering Manager coached the EDG system engineer on expectations to initiate condition reports (CRs) any time system parameters exceed normal/nominal values. In addition to the above listed process deficiencies, the system engineer failed to initiate CRs for

unexpected, unwanted conditions which contributed to a lack of design input to the gasket design.

3. On June 12, 2009, the Systems Engineering Manager discussed the event, the design change (MSP) and the root cause results with the preparer, reviewer and approver of the MSE. This included a reiteration of points made by the Engineering Director in a memo to the department, June 4, 2009.
4. On June 12, 2009, the Site Maintenance Manager reinforced with all Maintenance shops the expectation to initiate CRs for all identified unwanted conditions.
5. On June 30, 2009, the Site Operations Manager issued a Read and Sign memorandum to Operations personnel reinforcing expectations for initiation of CRs.
6. On July 16, 2009, the Site Engineering Director issued a memorandum to convey the expectation that all unwanted conditions will be documented in a CR for trending, even if the condition is corrected as part of the maintenance activity that discovered it. In addition, the personnel involved in the subject cooling spill were individually coached regarding this expectation.
7. On August 7, and August 24, 2009, work management guidance documents were revised to provide meeting structure, bases, and expectations for the diesel pre-maintenance and pre-start challenge meetings.
8. On August 27, 2009, the Design Change Manual was changed to require challenge boards for all MSPs for high risk/low margin systems.

#### II.b. Results Achieved

There have been no failures of the emergency diesel generators since the corrective actions have been implemented.

#### III. Corrective Steps to Avoid Further Violations

1. The Engineering Director performed an in-field case study with the Engineering Fix It Now (EFIN) group and each Design Engineering group using the root cause evaluation document to discuss the timeline, event and lessons learned, as well as the memo issued from the Engineering Director to the entire Engineering Department dated 6/4/09 discussing lessons learned and key takeaways, and highlighting actual versus expected performance.

This action was completed on October 31, 2009.

2. The NextEra Energy Design Control Manual (NADC) has been revised to:
  - 1) address Failure Modes and Effects Analysis (FMEA) of new designs, and,
  - 2) add instructions to address equipment/material/installation tolerances.

This action was completed on August 27, 2009.

IV. Date When Full Compliance Was Achieved

A new flange design, which included a gasket with a more robust design, was developed and installed in the B EDG cooling system, the diesel surveillance was completed and the B EDG was declared operable on March 2, 2009. Full compliance was achieved when the diesel was declared operable.