



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713**

January 30, 2019

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy Seabrook, LLC
Mail Stop: EX/JB
700 Universe Blvd.
Juno Beach, FL 33408

**SUBJECT: SEABROOK STATION, UNIT NO. 1 – INTEGRATED INSPECTION REPORT
05000443/2018004**

Dear Mr. Nazar:

On December 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1 (Seabrook). On January 24, 2019, the NRC inspectors discussed the results of this inspection with Mr. Eric McCartney, Regional Vice President – Northern Region, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report which involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, 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; and the NRC Resident Inspector at Seabrook. In addition, if you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC, 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at Seabrook.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Fred L. Bower, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket No. 50-443

License No. NPF-86

Enclosure:
Inspection Report 05000443/2018004

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05000443/2018004 DATED JANUARY 30, 2019

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 50-443

License Number: NPF-86

Report Number: 05000443/2018004

Enterprise Identifier: I-2018-004-069

Licensee: NextEra Energy Seabrook, LLC (NextEra)

Facility: Seabrook Station, Unit No. 1 (Seabrook)

Location: Seabrook, NH

Inspection Dates: October 1, 2018 to December 31, 2018

Inspectors: P. Cataldo, Senior Resident Inspector
P. Meier, Resident Inspector
E. Allen, Acting Resident Inspector
T. Daun, Resident Inspector
J. Kulp, Senior Reactor Inspector
N. Floyd, Senior Reactor Inspector
J. Furia, Senior Health Physicist
J. DeBoer, Emergency Preparedness Inspector
P. Ott, Operations Engineer

Approved By: Fred Bower, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring NextEra's performance at Seabrook by conducting the baseline inspections described in this report in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC-identified and self-revealing findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Loss of Primary Component Cooling Water			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000443/2018004-01 Closed	H.12 – Avoid Complacency	71153 Follow-up of Events and Notices of Enforcement Discretion
A self-revealing Green non-cited violation (NCV) was identified when Seabrook did not follow a procedure (Regulatory Guide 1.33, Appendix A) required by Technical Specification (TS) 6.7.1. Specifically, while performing procedure OS1012.04, "Primary Component Cooling Water Loop 'B'," Revision 28, Seabrook did not unlock and close the 'A' head tank isolation valve resulting in a loss of primary component cooling water, and impacted the ability to remove decay heat from the core.			

PLANT STATUS

Seabrook began the inspection period with the main turbine generator shutdown, reactor power below 8 percent rated thermal power, and a shutdown in-progress for entry into refueling outage No. 19 (OR19). On October 27, the reactor achieved initial criticality, and synchronized the main turbine generator to the power grid on October 28, and achieved 100 percent rated thermal power on October 31. There were no operational power changes of regulatory significance for the remainder of the inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures in effect at the beginning of the inspection unless otherwise noted. Currently approved inspection procedures with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the inspection procedure requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status" and conducted routine reviews using Inspection Procedure (IP) 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess Seabrook's performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) 'B' emergency feedwater system after entering Mode 3 on October 2
- (2) Spent fuel cooling while reactor was defueled on October 10
- (3) 'A' emergency feedwater system during the 'B' emergency feedwater pump operability test on November 16

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the 'A' residual heat removal system on October 15-16.

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Containment elevation -26' (C-F-1-Z) on October 3
- (2) Containment elevation 0' (C-F-2-Z) on October 3
- (3) Containment elevation 25' (C-F-3-Z) on October 3
- (4) Fuel storage building 7', 21', and 64' elevations (FSB-F-1-A) on November 29
- (5) Control building 26' battery rooms A, B, C and D (CB-F-1D-A, CB-F-1E-A, CB-F-1F-A, CB-F-1G-A) on December 18

71111.06 - Flood Protection Measures

Internal Flooding (1 Sample)

The inspectors evaluated internal flooding mitigation design measures in the west main steam and feedwater pipe chase, including floor drain inspections, on October 11.

71111.08 – Inservice Inspection Activities (1 Sample)

The inspectors evaluated pressurized water reactor non-destructive examination and welding activities by reviewing the following examinations from October 9-18:

- (1) Volumetric Examinations
 - a) Ultrasonic testing of the pressurizer 'B' nozzle to vessel weld (RC-E-10-B-NZ)
 - b) Phased array ultrasonic testing of pressurizer relief 'B' nozzle to safe end & safe end to pipe full structural weld overlay (RC-E-10-B-SWOL)
 - c) Phased array ultrasonic testing of pressurizer spray line nozzle to safe end & safe end to pipe full structural weld overlay (RC-E-10-SP-SWOL)
 - d) Ultrasonic testing of pressurizer surge line nozzle inner radius (RC-E-10-S-IR)
 - e) Ultrasonic testing of pressurizer surge line nozzle to vessel weld (RC-E-10-S-NZ)
- (2) Visual Examinations
 - a) VT3 examination of the containment liner surface and structural attachments
 - b) VT2 examination of the reactor vessel head bare metal visual
 - c) VT2 examination of the bottom mounted instrumentation
 - d) VT2 examination of service water pipe welds associated with the replacement of carbon steel piping with AL6XN piping
- (3) Surface Examination
 - a) Dye penetrant examination of service water replacement weld 1-SW-1810-X05
- (4) The inspectors evaluated NextEra's boric acid corrosion control program performance
- (5) The inspectors reviewed NextEra's steam generator tube inspection activities
- (6) The inspectors performed an independent walkdown of accessible portions of the containment liner and moisture barrier
- (7) The inspectors reviewed the welding activities associated with the replacement of the existing lined carbon steel service water line 1810-1-153-24" discharge piping from the primary component cooling water heat exchanger with piping made of AL6XN material

71111.11 - Licensed Operator Regualification Program and Licensed Operator Performance

Operator Regualification (1 Sample)

The inspectors observed and evaluated an annual regualification examination in the simulator on November 14. This examination involved multiple failures and events, including: a failed pressurizer level instrument, a reactor coolant pump malfunction, anticipated transient without scram event, and a steam generator tube rupture that required demonstration of cooldown and depressurization activities.

Operator Performance (1 Sample)

The inspectors observed and evaluated the following performance activities in the main control room:

- (1) Plant and reactor shutdown activities, automatic reactor trip from failed source range detectors and associated emergency operating procedure response, operator response to turbine vibrations and reactor protection instrumentation malfunction and associated abnormal operating procedure response, and entry into OR19 on October 1
- (2) Initial reactor coolant system draindown activities on October 4
- (3) Observed reactor coolant system draindown activities while at mid-loop condition, in preparation for the reactor coolant system evacuation on October 17-18
- (4) Observed infrequently performed test or evolution briefing in preparation for reactor startup, as well as initial criticality and low power physics testing, annunciator response, and communication protocols for reactivity manipulations on October 26-27

Operator Exams (1 Sample)

The inspectors reviewed and evaluated regualification examination results on December 20.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety-significant functions:

- (1) Emergency feedwater maintenance during OR19
- (2) Seal table recurrent leaks during OR19

71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Yellow outage risk associated with drain down and mode 6 entry on October 5
- (2) Yellow outage risk associated with decreased and reduced inventory on October 17-18
- (3) Yellow risk associated with service water cooling tower transfer on November 26
- (4) Yellow risk associated with emergency feedwater pump operability test on December 18

71111.15 - Operability Determinations and Functionality Assessments (2 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Past operability for 'A' charging pump due to flow transmitter circuit card failure (AR2273539)
- (2) Spray additive tank level uncertainty evaluation (AR2243163)

71111.19 - Post Maintenance Testing (7 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

- (1) Source range troubleshooting and repairs during refueling outage 19 (OR19)
- (2) 'A' safety injection system discharge isolation to hotleg valve maintenance during OR19
- (3) 'A' emergency diesel generator maintenance during OR19
- (4) 'A' inverter replacement during OR19
- (5) 'A' service water discharge header piping replacement during OR19
- (6) 'B' train control building clean-up filter calibration on November 26
- (7) Service water cooling tower makeup pump surveillance following maintenance on November 28

71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated OR19 activities from October 1-31.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (2 Samples)

- (1) 'B' residual heat removal in-service test on October 11
- (2) 'A' emergency feedwater comprehensive test on October 26

Containment Isolation Valve (1 Sample)

- (1) Containment recirculation sump valve (CBS-V-14) cold shutdown test on October 10

71114.04 – Emergency Action Level and Emergency Plan Changes (1 Sample)

The inspectors conducted an in-office review and verified that the changes made to the emergency plan were done in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(q)(3), and any change made to the Emergency Action Levels, Emergency Plan, and its lower-tier implementing procedures, had not resulted in any reduction in effectiveness of the Plan. This evaluation does not constitute NRC approval.

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated in-plant radiological conditions and performed independent radiation measurements during facility walkdowns and observation of radiological work activities. The inspectors examined the physical controls for selected high radiation areas, locked high radiation areas and very high radiation areas to verify conformance with the occupational performance indicator.

Risk-Significant High Radiation Areas and Very High Radiation Areas Controls (1 Sample)

The inspectors reviewed the procedures and controls for high radiation areas, very high radiation areas, and radiological transient areas in the plant.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance with respect to radiation protection work requirements. The inspectors evaluated radiation protection technicians in performance of radiation surveys and in providing radiological job coverage.

71124.02 - Occupational As Low As Reasonably Achievable Planning and Controls

Implementation of As Low As Reasonably Achievable and Radiological Work Control (1 Sample)

The inspectors reviewed radiological work controls and as low as reasonably achievable practices during the observation of in-plant work activities. The inspectors reviewed the results achieved against the intended as low as reasonably achievable estimates to confirm adequate implementation and oversight of radiological work controls.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification (5 Samples)

The inspectors verified Seabrook's performance indicators submittals listed below for the period from October 1, 2017, through September 30, 2018:

- (1) Safety system functional failures (MS05)
- (2) Residual heat removal systems (MS09)
- (3) Cooling water support systems (MS10)

The inspectors verified Seabrook's performance indicators submittals listed below for the period from January 1, 2018 through October 18, 2018:

- (4) Occupational exposure control effectiveness (OR01)
- (5) Radiological effluent TSs/offsite dose calculation manual radiological effluent occurrences (PR01)

71152 - Problem Identification and Resolution

1. Semiannual Trend Review (1 Sample)

The inspectors reviewed Seabrook's corrective action program for trends that might be indicative of a more significant safety issue.

2. Annual Follow-up of Selected Issues (2 Samples)

The inspectors reviewed Seabrook's implementation of its corrective action program related to the following issues:

- (1) Condition report AR2265706, Part 21 Notification Westinghouse control rod drive mechanism thermal sleeve wear
- (2) Emergency Action Level deficiencies during emergency plan drills and training

71153 - Follow-up of Events and Notices of Enforcement Discretion

Events (1 Sample)

The inspectors evaluated response to the following events:

- (1) Loss of primary component cooling water on October 7

INSPECTION RESULTS

Observation	71152.1 Semiannual Trend Review
<p>The inspectors evaluated a sample of condition reports generated over the course of the past two quarters, and the "Seabrook Station Q3 2018 Self-Evaluation and Trending Analysis Report." The inspectors also verified the analysis and report was conducted in accordance with PI-AA-207-1000, "Station Self-Evaluation and Trending Analysis," Revision 9. The inspectors evaluated a sample of inputs from departments that provide input to the quarterly report. The inspectors determined that, in general, the issues were appropriately evaluated by Seabrook staff for potential trends and resolved within the scope of the corrective action program. However, the inspectors noted in one instance a station-identified adverse trend associated with recurrent problems with the meteorological tower was planned for closure at the end of the third quarter trending assessment period. The tower is important to implementation of the emergency plan. The inspectors observed that new deficiencies associated with equipment on the tower that should have warranted NextEra's continued monitoring of the adverse trend into the fourth quarter.</p> <p>Subsequently, the inspectors observed a November meeting to review and approve the Q3 Trend Report. During this meeting, the station's Management Review Committee appropriately elevated the issues associated with the tower and its associated equipment to a higher significance within the corrective action program. This elevation of significance within the corrective action program is designed to ensure appropriate evaluation and implementation of corrective actions to resolve the ongoing issues with the tower and its associated equipment. The inspectors noted that this evaluation was also appropriate based</p>	

on the Management Review Committee's recognition of its importance to the implementation of the Emergency Plan.

Observation	71152.2(1) Annual Follow-up of Selected Issues
<p>The inspectors assessed Seabrook's corrective actions associated with AR2265706 to address the recommendations of the Nuclear Safety Assessment Letter 18-1, Thermal Sleeve Flange Wear Leads to Stuck Control Rod. This condition was identified at a foreign nuclear power plant and is described in NRC Information Notice 2018-10 (ML18214A710). The inspectors reviewed NextEra's procedure, measurement results and technical evaluation. The inspectors determined NextEra's response was timely, commensurate with the safety significance of the issue, and included appropriate corrective actions.</p>	

Loss of Primary Component Cooling Water			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Initiating Events	Green NCV 05000443/2018004-01 Closed	H.12 – Avoid Complacency	71153 Follow-up of Events and Notices of Enforcement Discretion
<p>A self-revealed Green non-cited violation (NCV) was identified when Seabrook did not follow a procedure (Regulatory Guide 1.33, Appendix A) required by TS 6.7.1. Specifically, while performing procedure OS1012.04, "Primary Component Cooling Water Loop 'B'," Revision 28, Seabrook did not unlock and close the 'A' head tank isolation valve resulting in a loss of primary component cooling water, impacting the ability to remove decay heat from the core.</p> <p><u>Description:</u> On October 7th during a cross-tie evolution of the 'A' and 'B' primary component cooling water trains in accordance with OS1012.04, the 'B' primary component cooling water head tank level began to lower. Prior to the event, Seabrook had secured the 'A' residual heat removal and 'A' primary component cooling water pumps in preparation for outage-related maintenance, and established conditions for core offload by maximizing cooling to the spent fuel pool heat exchanger. Although unknown at the time of the event, because the 'A' train head tank isolation valve was not closed as required by the steps in OS1012.04, the 'B' primary component cooling water head tank level continued to lower as the 'B' train inventory was transferred to the 'A' train head tank. In response, operators manually secured the 'B' primary component cooling water pump due to evidence of cavitation, which resulted in a loss of all primary component cooling water system flow to both the spent fuel pool and shutdown cooling heat exchangers.</p> <p>Seabrook appropriately entered TS 3.9.8.1, "Residual Heat Removal and Coolant Circulation," because the residual heat removal system was unable to effectively remove decay heat from the core via the primary component cooling water and residual heat removal heat exchangers. During subsequent system restoration, Seabrook identified the 'A' primary component cooling water head tank isolation valve had not been repositioned to the closed position during the cross-tie evolution, causing the 'B' head tank water inventory to transfer to the 'A' head tank. Based on a review of the applicable TS and TS Bases, the inspectors determined the residual heat removal safety function was not lost because reactor vessel water temperature was less than 140°F, and sufficient coolant circulation was maintained</p>			

through the core with residual heat removal pumps still in operation, to minimize the effect of a boron dilution event and prevent boron stratification.

Corrective Actions: The short term corrective actions included backing out of the cross-tie procedure, identification of the valve misalignment, and restoration of the primary component cooling water system to normal operation using normal and abnormal operating procedures. Additionally, on October 9, 2018, NextEra Senior Management completed a special, internal team assessment using fleet resources, to evaluate risk recognition and mitigation drivers that contributed to the loss of primary component cooling water event. Also, the NextEra fleet assessment reviewed previous human performance events from the last refueling outage, as well as other human performance deficiencies that were identified during the operating cycle. Seabrook initiated a root cause evaluation to identify root and contributing causes, and applicable short and long-term corrective actions. Seabrook also identified the risk process for online and outage work activities performed by work management during scheduling and planning was not applied to the primary component cooling water cross-tie evolution. In addition, Seabrook also developed a case study to address risk management fundamentals.

Corrective Action References: AR 02284272

Performance Assessment:

Performance Deficiency: Seabrook TS 6.7.1.a. states that written procedures shall be implemented covering activities described in Regulatory Guide 1.33. Regulatory Guide 1.33, Revision 2, Appendix A, paragraph 3, lists procedures for shutdown, safety-related pressurized water reactor systems. Item 'e' specifically lists "Component Cooling Water System," which for Seabrook, is the primary component cooling water system. Procedure OS1012.04 provides step-by-step instructions on the operation of the primary component cooling water system.

Screening: The inspectors used IMC 0612, Appendix B, to determine the performance deficiency was more than minor. The improper shutdown equipment lineup was associated with the configuration control 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 operations. Specifically, Seabrook did not properly implement procedure OS1012.04, resulting in loss of primary component cooling water, and impacted the ability to remove decay heat from the core. The finding was screened in accordance with IMC 0609 Appendix G, Attachment 1, "Shutdown Operations Significance Determination Phase 1 Initial Screening and Characterization Of Findings." The finding represents an initiating event loss of component cooling water scenario which impacts the decay heat removal safety function.

Significance: In accordance with IMC 0609, Appendix G, Attachment 1, the finding did not screen to green and involved a detailed risk analysis. A Region I Senior Reactor Analyst performed a risk evaluation for the finding using the guidance within IMC 0609, Appendix G, Attachment 2, Phase 2 significance determination process template for a pressurized water reactor during shutdown conditions. Specifically, Table 4 and Worksheet 9 were used to perform an estimate of the risk increase. Although there is no worksheet for plant operating State 3 for loss of residual heat removal, the Senior Reactor Analyst conservatively used Worksheet 9 for plant operating state 2 as a surrogate to be a bounding condition. Plant operating state 3 would typically apply in operating Mode 6 with a reactor vessel flooded-up condition. The core damage sequences of interest were the initiating event likelihood for loss of residual heat removal, with a failure to recover the residual heat removal support system

(i.e. primary component cooling water), and failure to recover residual heat removal, with failure of makeup to the refueling water storage tank. The second sequence was the initiating event likelihood for a loss of residual heat removal with failure to recover the support system for residual heat removal and failure to feed the reactor pressure vessel due to reactor coolant system boil-off. Both sequences resulted in core damage sequences of a conditional core damage probability of E-11. However, the Senior Reactor Analyst conservatively clamped the mitigating strategies probability of failure at E-5 in accordance with guidance within Risk Assessment of Operating Events, Volume 4, "Shutdown Event Review," Revision 1.0. Appendix B provides guidance on the treatment of operator actions and Table B-1.4 provides limitations for total human error probability credit for the core damage sequences, which accounts for dependency for operator failure actions. Although the Senior Reactor Analyst noted there would likely be weak dependency due to excessive time to accomplish actions (i.e at least 8 hours to calculated time to boil) and actions having cues with simple tasks, a nominal operator failure HEP of 1E-5 was used as a cutoff for all mitigation credit. The initiating event likelihood with the mitigating actions resulted in an estimated increase in core damage frequency of E-9/yr, or of very low safety significance (Green).

The Senior Reactor Analyst noted that Table 5 within Appendix B of the Risk Assessment of Operating Events, Volume 4 for condition findings, was noted to not apply to loss of residual heat removal conditions for the plant operating state 3. This further indicates the assumed low risk given the plant configuration. This is due, in part, to the amount of time to boil (estimated at 8 hours), and the volume of reactor coolant system water with the vessel flooded up.

Cross Cutting Aspect: The inspectors determined this finding affected the cross-cutting area of human performance in the aspect of avoid complacency (H.12), where individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. The inspectors found the most-significant contributor to the event was because individuals did not implement appropriate error reduction tools during operation of valves associated with the primary component cooling water system.

Enforcement:

Violation: Technical Specification 6.7.1 requires applicable procedures recommended in Appendix A of Regulatory Guide 1.33, to be established, implemented, and maintained. Procedure OS1012.04 "Primary Component Cooling Water Loop B" (Rev. 28) Step 4.7.6.4, requires unlocking and closing the 'A' head tank isolation valve.

Contrary to the above, on October 7, 2018, while in Mode 6, Seabrook inadequately implemented OS1012.04 Steps 4.7.6.4 when operators did not unlock and close the 'A' head tank isolation valve when cross-tying the 'A' and 'B' primary component cooling water trains causing a loss of primary component cooling water and impacting the ability to remove decay heat from the core.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

Inspectors verified no proprietary information was retained or documented in this report.

- On October 19, 2018, the inspector presented the radiation safety inspection results to Ms. T. Smith, Radiation Protection Manager, and other members of the staff.
- On November 8, 2018, the inspector presented the inservice inspection results to Mr. Kenneth Browne, Licensing Manager, and other members of the staff.
- On January 24, 2019, the inspector presented the quarterly resident inspection results to Mr. Eric McCartney, Regional Vice President, Northern Region, and other members of the staff.

DOCUMENTS REVIEWED**71111.08**Procedures

ER-AP-116, Boric Acid Corrosion Control, Revision 2
 ER-AP-116-1000, Boric Acid Corrosion Control Program, Revision 2
 ES99-1-3, Mechanical Ribbed Plugging of Steam Generator Tubes, Revision 10
 ES10-01-38, Manual Ultrasonic Procedure for the Examination of Non-PDI Nozzle Inner Corner Regions, Revision 3
 ES10-01-39, Manual Ultrasonic Procedure for the Examination of Non-RPV Nozzle-to-Shell Welds in Vessels >2", Revision 4
 ES10-01-40, Procedure for Manual Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds, Revision 2
 ES1807.032, Inservice Inspection Procedure Primary Containment Section XI IWE Program, Revision 3
 ES1807.037, Visual Examination (VE) Procedure for BMI Inspection (N-722-2), Revision 5
 ES1807.050, Visual Examination (VE) Procedure for Reactor Vessel Upper Head (RVUH) Penetration Inspections (N-729-4), Revision 3
 MRS-TRC-2352, Seabrook Appendix H & I Techniques Fall 2018 Inspection, dated October 7, 2018

Condition Reports (*initiated in response to inspection)

2079690	2089139	2286224*	2286243	2286419*	2286431*
2286436	2286437	2287309			

Maintenance Orders/Work Orders

40539475	40539606	40557622	40557622	40557628	40557628
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Engineering Evaluations

AR2286419, OR19 BMI Examination Evaluation, Revision 0
 AR2286419, OR19 BMI Examination Evaluation, Revision 1
 SG-SGMP-17-13, Seabrook OR18 Condition Monitoring and Operational Assessment, Revision 1
 SG-SGMP-17-1, Steam Generator Degradation Assessment for Seabrook OR18 Refueling Outage, Revision 3
 SG-SGMP-18-19, Seabrook OR19 Condition Monitoring and Preliminary Operational Assessment, Revision 0

Drawings

1-NHY-650006ISI, ISI Equipment Welds Pressurizer RC-E-10, Revision 3

Miscellaneous

18-UT-086, Ultrasonic Phased Array WOL Examination Record, dated October 14, 2018
 18-UT-087, Ultrasonic Phased Array WOL Examination Record, dated October 14, 2018
 18-UT-084, Ultrasonic Examination Data Sheet, dated October 13, 2018
 18-UT-085 Ultrasonic Examination Data Sheet, dated October 14, 2018
 18-UT-081 Ultrasonic Examination Data Sheet, dated October 17, 2018
 18-GV-007, Liner Surface and Structural Attachments, -26 to 0 level, 0-90 azimuth, dated October 15, 2018
 40539475-04, Weld Traveler 1SW-1810-X05 Joint F7022, dated October 13, 2018

40539475-04, Liquid Penetrant Examination Data Sheet, 1SW-1810-X05 Joint F7022, dated October 13, 2018
 ASME Boiler & Pressure Vessel Code Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 2004 Edition
 Engineering Evaluation Documenting Integrity of the Containment Liner Plate, dated April 24, 2017
 ISI-SBIK-2017, Owner's Activity Report, dated July 12, 2017
 LMT Curtis-Wright Personal Certification Statement for N122897, dated August 17, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for N122897, dated July 12, 2018
 LMT Curtis-Wright Personal Certification Statement for 337989, dated August 29, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for 337989, dated May 18, 2018
 LMT Curtis-Wright Personal Certification Statement for 211403, dated July 13, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for 211403, dated February 23, 2018
 LMT Curtis-Wright Personal Certification Statement for 214306, dated August 21, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for 214306, dated August 24, 2018
 LMT Curtis-Wright Personal Certification Statement for 304492, dated August 17, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for 304492, dated June 14, 2018
 LMT Curtis-Wright Personal Certification Statement for N112348, dated August 29, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for N112348, dated July 20, 2018
 LMT Curtis-Wright Personal Certification Statement for 343478, dated July 13, 2018
 LMT Curtis-Wright Certification of Visual Acuity and Color Vision for 343478, dated September 30, 2018
 MRS-TRC-1261, Steam Generator Eddy Current Data Analysis Guidelines Manual, Revision 8
 N-722-1, Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/82/182 Materials, dated January 26, 2009
 N-729-4, Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1, dated June 22, 2012
 NDE Eye Examination Record for 31861, dated February 27, 2018
 NDE Certification/Qualification Record for 31861, dated June 12, 2014
 SIIR, Seabrook Inservice Inspection Reference, Revision 17

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Procedures

EN18-01-02, Metrology Services Laser Operation Procedure (Laser Tracker Set-up), Revision 00
 EN18-01-03, Metrology Services Laser Operation Procedure (Laser Scanning), Revision 00
 EN18-01-04, Metrology Services Measurement Form, Revision 00

Condition Reports (*initiated in response to inspection)

2210367	2229621	2235536	2240392	2240405	2242073
2262853	2265706	2273689			

Engineering Evaluations

AR2273689, CRDM Thermal Sleeve Flange Wear Evaluation, Revision 00

Drawings

10873-112-002, Sheet 1, Control Rod Mechanism Housing Details, Revision 4

1448E83, Sheet 2, Closure Head (NAH) General Assembly, Revision 0

1464F11, Sheet 1, Thermal Sleeve, Revision 4

Miscellaneous

CN-RIDA-14-44, V.C. Summer Unit 1 Thermal Sleeve Flange Wear, Revision 0

LTR-NRC-18-34, Westinghouse Letter: Notification of the Potential Existence of Defects

Pursuant to 10 CFR Part 21, dated May 23, 2018

MRP 2018-027, NEI 03-08 Needed Inspection Guidance for PWR CRDM Thermal Sleeve Wear, dated August 31, 2018

NSAL-18-1, Thermal Sleeve Flange Wear Leads to Stuck Control Rod, dated July 9, 2018

PWROG-16003-P, Evaluation of Potential Thermal Sleeve Flange Wear, Revision 1

TB-07-2, Reactor Vessel Head Adapter Thermal Sleeve Wear, Revision 3

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OS1247.01, Loss of a 120VAC Vital Instrument Panel (PP1A, 1B, 1C or 1D), Revision 20

Miscellaneous

GN1332.00, Security Response to a Declared Radiological Emergency, Dated 8/30/2018

Seabrook Station Radiological Emergency Plan, Revision 74