



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

February 10, 2022

Mr. Robert Coffey  
Executive Vice President, Nuclear Division  
and Chief Nuclear Officer  
Florida Power & Light Company  
700 Universe Blvd. Mail Stop: EX/JB  
Juno Beach, FL 33408

SUBJECT: SEABROOK STATION, UNIT NO. 1 – INTEGRATED INSPECTION REPORT  
05000443/2021004

Dear Mr. Coffey:

On December 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Seabrook Station, Unit No. 1. On January 10, 2022, the NRC inspectors discussed the results of this inspection with Mr. Grant Melvin, Site Operations Director and other members of your staff. The results of this inspection are documented in the enclosed report.

Three findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. 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 Station, Unit No. 1.

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 Station, Unit No. 1.

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 at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Matt R. Young, Chief  
Projects Branch 2  
Division of Operating Reactor Safety

Docket No. 05000443  
License No. NPF-86

Enclosure:  
As stated

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SUBJECT: SEABROOK STATION, UNIT NO. 1 – INTEGRATED INSPECTION REPORT  
05000443/2021004 DATED FEBRUARY 10, 2022

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Number: 05000443

License Number: NPF-86

Report Number: 05000443/2021004

Enterprise Identifier: I-2021-004-0005

Licensee: NextEra Energy Seabrook, LLC

Facility: Seabrook Station, Unit No. 1

Location: Seabrook, New Hampshire

Inspection Dates: October 1, 2021 to December 31, 2021

Inspectors: C. Newport, Senior Resident Inspector  
T. Daun, Resident Inspector  
P. Cataldo, Senior Reactor Inspector  
N. Floyd, Senior Reactor Inspector  
B. Fuller, Senior Operations Engineer  
J. Kulp, Senior Reactor Inspector  
S. Wilson, Senior Health Physicist  
T. Wingfield, Operations Engineer

Approved By: Matt R. Young, Chief  
Projects Branch 2  
Division of Operating Reactor Safety

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Seabrook Station, Unit No. 1, 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.

### List of Findings and Violations

Failure to Implement Required Compensatory Measures for Nonfunctional Fire Detection Instrumentation			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000443/2021004-01 Open/Closed	[H.13] - Consistent Process	71111.05
The inspectors identified a Green finding and associated non-cited violation (NCV) of Seabrook Station Facility Operating License Condition 2.F when the licensee failed to perform required compensatory hourly fire patrol rounds in the 'B' residual heat removal (RHR) pump room in accordance with their approved fire protection program procedures. The station implemented an alternate compensatory action which was not evaluated, procedurally directed, or designed with appropriate risk insights.			

Failure to Perform Adequate Evaluations of Safety-Related Plant Structures, Including Structures Potentially Impacted by Alkali Silica Reaction			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green FIN 05000443/2021004-02 Open/Closed	None (NPP)	71111.12
The inspectors identified a Green finding when, in 2017, the licensee did not document and evaluate conditions observed as indicative of impacts from alkali silica reaction (ASR) identified in the reactor cavity pit area in accordance with NextEra Engineering Department Standard 36180, “Structural Monitoring Program.”			

Failure to Provide Accurate Dose Rates to an Individual Prior To Entry into a High Radiation Area			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000443/2021004-03 Open/Closed	[H.12] - Avoid Complacency	71124.01
The inspectors identified a Green finding and associated NCV of Technical Specification 6.11, High Radiation Area, when the licensee allowed an individual to make entry into a high radiation area where dose rates had changed and the worker's radiological briefing did not reflect the prevailing dose rates. Specifically, the individual received a briefing for entry into a high radiation area and the radiological survey conditions provided did not reflect the prevailing radiological conditions in the area. This resulted in the individual being unaware of the elevated dose rates and receiving more radiation exposure than anticipated.			

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000443/2021002-00	LER 2021-002-00 for Seabrook Station, Condition Prohibited by Technical Specifications Entered due to Service Water Cooling Tower Fan Inoperable	71153	Closed

## PLANT STATUS

Seabrook Station began the inspection period in refueling outage 21 that commenced on October 1, 2021, and returned to 100 percent power on November 8, 2021. Seabrook remained at or near full power for the rest of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs 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 IP 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 activities described in IMC 2515, Appendix D, "Plant Status," conducted routine reviews using IP 71152, "Problem Identification and Resolution," observed risk significant activities, and completed on-site portions of IPs. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold weather for the following systems: emergency feedwater, spent fuel storage, demineralized water storage, and service water on December 15

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) 'A' residual heat removal upon initiation of shutdown cooling for decay heat removal on October 5
- (2) Spent fuel pool cooling following core offload to spent fuel pool on October 15
- (3) Reactor vessel level indication system during draindown to mid-loop for steam generator nozzle dam installation on October 20
- (4) 'B' emergency feedwater pump return-to-service after surveillance testing on November 30

#### Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated system configurations during a complete walkdown of the charging and volume control system between October 5 and December 23

## 71111.05 - Fire Protection

### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Containment building zone C-F-1-Z on October 7
- (2) 'B' residual heat removal vault zone RHR-F-1A-Z on October 19
- (3) Containment building zone C-F-2-Z on October 25
- (4) Containment building zone C-F-3-Z on October 27
- (5) Primary auxiliary building zone PAB-F-2A-Z on December 28

## 71111.06 - Flood Protection Measures

### Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) Diesel generator building zone 21A/21B on December 20

## 71111.07A - Heat Sink Performance

### Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) 'A' primary component cooling water heat exchanger

## 71111.08P – Inservice Inspection Activities (PWR)

### PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from October 11 to October 22:

#### 03.01.a - Non-destructive Examination and Welding Activities

- Remote manual ultrasonic examination of reactor pressure vessel nozzle to safe end weld (RC-RPV-SE-302-121B) (NAH-247-01)
- Manual phased array ultrasonic examination of the -26' containment liner for license renewal commitment (WO 40209036-01)
- Ultrasonic examination of pressurizer shell to head circumferential weld RC-E-10-9 (AVR-02)
- Ultrasonic examination of pressurizer long seam weld RC-E-10-8 (AVR-01)
- Phased array ultrasonic examination of FW-46 supporting replacement of MS-V-363 (OR21-PAUT-002)



- Eddy current examination of reactor pressure vessel nozzle to safe end weld (RC-RPV-SE-302-121B) (NAH-247-01)
- VT-2 examination of pressurizer heater sleeves (21-VT2-001)
- Engineering disposition for water discovered in leak chase HL5-2 (AR 02351984)
- American Society of Mechanical Engineers (ASME) repair/replacement activity: replacement of MS-V-363 (WO 60141565)

03.01.b - Pressurized-Water Reactor Vessel Upper Head Penetration Examination Activities

- Reactor pressure vessel head bare metal visual examination of penetrations 22, 24, 45 and 61 (WDI-PJF-1322723-FSR-001)

03.01.c - Pressurized-Water Reactor Boric Acid Corrosion Control Activities

- Boric acid program visual inspection of leaks at 1-CS-FT-160, 1-SI-LT-952, 1-RC-FT-416 (ARs 2405971, 0245974, 2405958)

03.01.d - Pressurized-Water Reactor Steam Generator Tube Examination Activities

- Eddy current examination of steam generator tubes D-20-28, D-21-28, C-39-45, B-25-51, D-43-49, B-8-116, and D-36-41 (WO 40719485)

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

- (1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exams administered for the exam cycle ending on December 17

71111.11B - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Program (IP Section 03.04) (1 Sample)

- (1) Biennial Requalification Written Examinations

The inspectors evaluated the quality of the licensed operator biennial requalification written examination administered the weeks of December 6 and December 13

Annual Requalification Operating Tests

The inspectors evaluated the adequacy of the facility licensee's annual requalification operating test

Administration of an Annual Requalification Operating Test

The inspectors evaluated the effectiveness of the facility licensee in administering requalification operating tests required by 10 CFR 55.59(a)(2) and that the facility licensee is effectively evaluating their licensed operators for mastery of training objectives

### Requalification Examination Security

The inspectors evaluated the ability of the facility licensee to safeguard examination material, such that the examination is not compromised

### Operator License Conditions

The inspectors evaluated the licensee's program for ensuring that licensed operators meet the conditions of their licenses

### Control Room Simulator

The inspectors evaluated the adequacy of the facility licensee's control room simulator in modeling the actual plant, and for meeting the requirements contained in 10 CFR 55.46

### Problem Identification and Resolution

The inspectors evaluated the licensee's ability to identify and resolve problems associated with licensed operator performance

## 71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

### Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during reactor plant shutdown and initiation of shutdown cooling on October 1 and October 2

### Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator training conducted in the plant-reference simulator on December 9

## 71111.12 - Maintenance Effectiveness

### Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components remain capable of performing their intended function:

- (1) Inspection of containment internal structures in accordance with the Structures Monitoring Program on October 14
- (2) Inspection of the discharge structure in accordance with the Structures Monitoring Program on November 10

### Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following structure, system, and component remains capable of performing its intended function:

- (1) Service water cooling tower fan replacement coupling shaft commercial grade dedication under EC0296732 on November 29

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

#### Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Refueling outage 21 aggregate shutdown risk plan review on October 1
- (2) Elevated risk during initiation of shutdown cooling with the reserve auxiliary transformers out of service on October 4
- (3) Elevated shutdown risk during vacuum fill of the reactor coolant system on October 20
- (4) Elevated risk during 345kV bus 2 maintenance and turbine driven auxiliary feedwater pump quarterly surveillance on December 15

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Containment internal structures reactor cavity pit potential building deformation impact (AR02408546) on October 14
- (2) 'B' rod control motor generator set contact failure (AR02410294) on November 17
- (3) Supplemental emergency power system coolant leak (AR02414362) on December 21

### 71111.18 - Plant Modifications

#### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Service water discharge pipe SW-1814 flush patch code repair
- (2) Replacement of MS-V-393 'A' main steam admission valve to turbine driven emergency feedwater pump

### 71111.19 - Post-Maintenance Testing

#### Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Inservice test relief valve testing on October 15
- (2) Solid state protection system card replacement on October 18
- (3) 'C' vital inverter replacement on October 28
- (4) 'B' service water cooling tower pump discharge check valve SW-V-24 replacement on December 2
- (5) 'B' main steam isolation valve MS-V-88 hydraulic relief valve replacement on December 10

### 71111.20 - Refueling and Other Outage Activities

#### Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated refueling outage 21 activities from October 1 to November 8

### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

#### Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) 'B' containment building spray and containment valve actuation surveillance on October 4
- (2) Determination of dose equivalent iodine-138 in reactor coolant system on December 7

#### Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Turbine driven emergency feedwater pump quarterly surveillance on December 15

#### Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

- (1) Containment isolation valve test for penetration X-37A, chemical and volume control normal letdown on October 28

#### FLEX Testing (IP Section 03.02) (1 Sample)

- (1) 405kW FLEX diesel generator functional test on December 6

## 71114.06 - Drill Evaluation

### Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated the conduct of a routine, full participation emergency planning drill on December 8

## **RADIATION SAFETY**

### 71124.01 - Radiological Hazard Assessment and Exposure Controls

#### Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

#### Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors observed/evaluated the following licensee processes for monitoring and controlling contamination and radioactive material:

- (1) Licensee surveys of potentially contaminated material leaving the radiologically controlled area
- (2) Non-exempt sealed source inventory and sealed source leak tests and verified that sources are accounted for and have been verified to be intact (i.e., they are not leaking their radioactive content)

#### Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

The inspectors evaluated the licensee's control of radiological hazards for the following radiological work:

- (1) Various work groups in containment staging and setting up equipment for planned maintenance and non-destructive testing
- (2) Total effective dose equivalent as-low-as-reasonably-achievable assessment for radiological waste functions associated with steam generator work including vacuum filter changeout
- (3) Review of the following radiological work package for areas with airborne radioactivity:
  - Reactor disassembly radiation work permit
  - Steam generator radiation work permit

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (2 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) High radiation area controls in-plant auxiliary building including controls for highly activated items in the spent fuel pool
- (2) 'A' and 'B' residual heat removal system vaults

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements

71124.02 - Occupational ALARA Planning and Controls

Radiation Worker Performance (IP Section 03.04) (1 Sample)

- (1) Observed multiple work groups in the containment building performing various activities

71124.08 - Radioactive Solid Waste Processing & Radioactive Material Handling, Storage, & Transportation

Shipment Preparation (IP Section 03.04) (1 Sample)

- (1) The inspectors observed that a dry active waste shipment containing radioactive material was prepared according to requirements

Shipping Records (IP Section 03.05) (2 Samples)

The inspectors evaluated the following radioactive material shipments through a record review:

- (1) Shipment number 21-023; UN3321, radioactive material, low specific activity (LSA-II), 7, dry active waste
- (2) Shipment number 21-010; UN2910, radioactive material, excepted package limited quantity, dry active waste

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (1 Sample)

- (1) For the period October 1, 2020 through September 30, 2021

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

- (1) For the period October 1, 2020 through September 30, 2021

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

- (1) For the period October 1, 2020 through September 30, 2021

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

- (1) For the period October 1, 2020 through September 30, 2021

71152 - Problem Identification and Resolution (PI&R)

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends that might be indicative of a more significant safety issue

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

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

- (1) Containment integrated leak rate testing requirements

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

- (1) LER 05000443/2021-002-00, Condition Prohibited by Technical Specifications Entered Due to Service Water Cooling Tower Fan Inoperable (ADAMS Accession No. ML21320A354). The inspection conclusions associated with this LER are documented in Inspection Report 05000443/2021003 (ADAMS Accession No. ML21314A043), Sections 71111.19 and 71153. This LER is closed.

**INSPECTION RESULTS**

Failure to Implement Required Compensatory Measures for Nonfunctional Fire Detection Instrumentation			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000443/2021004-01 Open/Closed	[H.13] - Consistent Process	71111.05
The inspectors identified a Green finding and associated NCV of Seabrook Station Facility Operating License Condition 2.F when the licensee failed to perform required compensatory			

hourly fire patrol rounds in the 'B' RHR pump room in accordance with their approved fire protection program procedures. The station implemented an alternate compensatory action which was not evaluated, procedurally directed, or designed with appropriate risk insights.

Description: On October 11, 2021, fire detection zone 3, associated with the 'B' RHR pump room, locked into "trouble" and would not reset. This condition made all the detectors in RHR vault zone 3 nonfunctional since they would not relay an alarming condition to the control room as required. The station took immediate action to place the fire panel and area on hourly fire rounds as directed by the station's Technical Requirement (TR) 12 for Fire Detection Instrumentation. TR 12, action b states, in part, with more than one-half of the Type X fire detection instruments in any fire zone or group nonfunctional, establish a fire watch patrol to inspect zone(s) or group(s) with the nonfunctional instrument(s) hourly. These actions were documented in condition report (CR) 2407105.

On October 20, 2021, in preparation for reactor vessel drain down to remove steam generator nozzle dams, NRC inspectors reviewed the action tracking log for fire impairments and noted that there was a text note that indicated the fire watch did not have to go into the impacted zone since it was a high radiation area. An alternate check was done that allowed the fire watch to open a door four levels above the RHR pump room. This room provided the ability to look down to the RHR pump room but only to see the top of a floor grate above the RHR pump. The inspectors immediately contacted the operations shift manager to inquire if an evaluation had been done analyzing the appropriateness of this change to the required compensatory action. The shift manager immediately directed the restoration of the approved compensatory action as required by TR 12 and wrote CR 2408382 to evaluate the alternate compensatory fire watch rounds.

On November 23, 2021, inspectors were reviewing the actions taken to address the questions raised on October 20 and noted that on October 21 the station reverted the fire watch rounds from what was directed by the operations shift manager on October 20 back to the alternate compensatory action of checking the RHR pump room from four levels above until the degraded fire detection instrumentation was returned to service on November 10, 2021. Inspectors again questioned the station if an appropriate evaluation was completed. On December 2, 2021, CR 2412826 was written to evaluate if the alternate compensatory action was appropriate and concluded that the alternate compensatory measure was not appropriate and did not account for the license requirements implemented by TR 12.

Corrective Actions: The nonfunctional fire detection was restored to service on November 10, 2021 which terminated the need for additional fire watch tours. The station has issued direction to the fire brigade leaders and shift operations managers that the compensatory actions directed by the Technical Requirements Manual shall be implemented as written unless a formal evaluation is performed. Additionally, on December 7, 2021, the station initiated CR 2413145 to evaluate adding fire watch responsibilities into the fire protection program procedures since formal duties and responsibilities of the fire watch currently do not exist.

Corrective Action References: CRs 2412826, 2413145, 2407105, 2408382

Performance Assessment:

Performance Deficiency: The inspectors determined that Seabrook's failure to establish an appropriate compensatory hourly fire patrol or use formal process to evaluate an alternate compensatory action was a performance deficiency. This performance deficiency was reasonably within Seabrook's ability to foresee and prevent and should have been corrected.



**Screening:** The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone and 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 failure to perform multiple hourly fire watch tours as a compensatory measure for fire detector instrument failures would have impacted fire brigade response and did not ensure the RHR system would remain available to perform its accident mitigating function to remove decay heat and other safety functions during a postulated fire event.

**Significance:** The inspectors assessed the significance of the finding using IMC 0609, Appendix G, "Shutdown Safety SDP." The inspectors used Exhibit 3, "Mitigating Systems Screening Questions," Section B, "External Event Mitigation Systems," and checked YES to question 9a. Even though the response time of the fire brigade was impacted, the response time was mitigated by other defense-in-depth elements. Specifically, there was functional fire detection instrumentation in all adjacent locations to the RHR pump room and area combustible loading limits were not exceeded. Based on this, the inspectors determined that the finding was of very low safety significance (i.e., Green).

**Cross-Cutting Aspect:** H.13 - Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate. Specifically, there was not a well-defined decision making process to implement an alternative compensatory measure when faced with competing priorities of nonfunctional fire detection instrumentation which would require hourly entry into a high radiation area [H.13].

**Enforcement:**

**Violation:** Seabrook Station, Unit 1 Facility Operating License Condition 2.F requires, in part, for NextEra to implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report, the Fire Protection Program Report, and the Fire Protection and Safe Shutdown Capability report, as supplemented. Supplement 7 of the Safety Evaluation Report approved NextEra's request to establish fire protection program limiting conditions for operation and action statements that provide a level of protection equivalent to that provided by the fire protection sections of the Westinghouse Standard Technical Specifications. This commitment was incorporated into Section 9.5-1 of Seabrook's Updated Final Safety Analysis Report which states, in part, limiting conditions for operation, action statements, and surveillance requirements for the fire protection program are prescribed in the Seabrook Station Technical Requirements Manual. The Seabrook Station Technical Requirements Manual, TR 12, Fire Detection Instrumentation, establishes the limiting condition for operation for installed fire detection instrumentation. TR 12 prescribes the actions for more than one-half of the Type X fire detection instruments in any zone or group being nonfunctional as establishing an hourly fire watch patrol to inspect the zone or group with the nonfunctional instruments hourly.

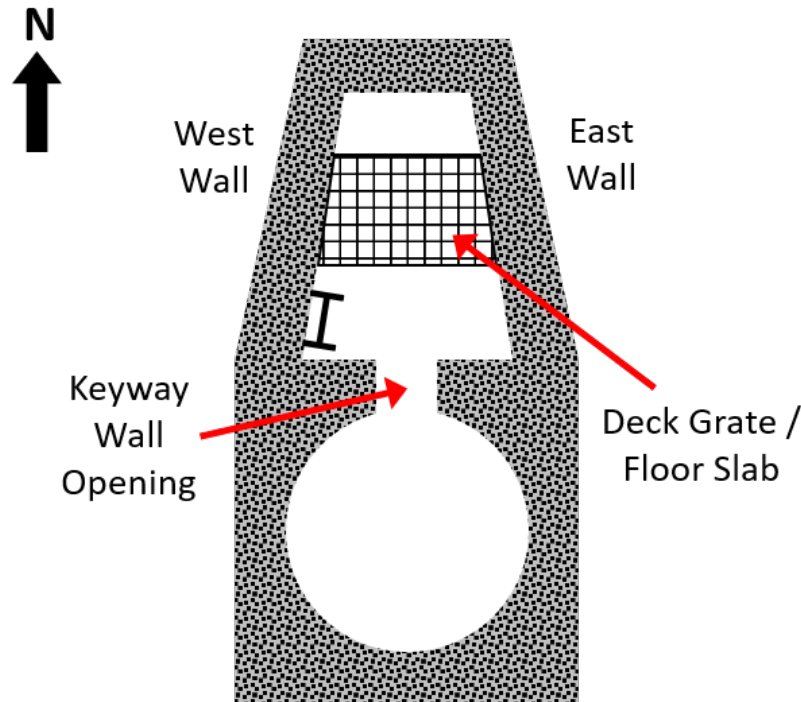
Contrary to the above, during the period October 11, 2021, to October 20, 2021, and again from October 21, 2021, to November 10, 2021, Seabrook Station had more than one-half of the fire detection instruments in zone 3 of the RHR vault nonfunctional and did not establish an adequate hourly fire watch patrol to inspect the zone or group with the nonfunctional instruments hourly.

**Enforcement Action:** This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Observation: Review of Condition Accepted by Evaluation from OR20 Refueling Outage	71111.08P
<p>The inspectors selected for review a condition considered to be relevant in accordance with ASME XI Code, Section IWE. The condition involved water observed in some containment liner leak chases identified from the previous refueling outage that Seabrook staff analytically evaluated and accepted for continued service. This condition is referenced in the Owner's Activity Report for the Spring 2020 OR20 refueling outage (ML20209A520) and documented in NextEra's corrective action program under AR2353146, AR02351311, AR02351991, and AR02351984. The inspectors determined that NextEra staff identified moisture in the leak chase test connections for four leak chases while performing examinations in accordance with regulatory requirements and ASME XI Code, Section IWE. There was observation of temporary pressure head (bubbling of water subsiding over a period of seconds to several minutes) in four leak chases after the caps were removed. The examinations addressed the capability of the leak chase test connection plugs and caps to function as a moisture barrier. Operating experience with this type of system and examination requirements are discussed in Information Notice 2014-07 (ML14070A114). During the OR20 refueling outage, NextEra staff evaluated the condition by performing chemical and radiological analysis of water in the leak chases as well as a visual (VT-1) examination of accessible portions of the leak chases and the associated test connections. NextEra staff completed an engineering evaluation to document their acceptance for continued service in accordance with ASME Section XI, IWE-3122. The evaluation concluded that the liner plate was capable of performing its specified design function as a leak tight barrier and it was scheduled for reexamination during the next inspection period.</p> <p>The inspectors noted NextEra staff reexamined three of the four leak chase moisture barriers from the previous refueling outage (OR20) during this refueling outage (OR21) and found that the three leak chases had relevant conditions (moisture) which required evaluation. Three of the leak chases exhibited some water head as the leak chase was opened, which is similar to that observed in the previous outage. An additional seven leak chases were examined and five were found with relevant conditions (moisture). NextEra staff performed chemical and radiological analysis of water discovered in the leak chases as well as a visual (VT-1) examination of accessible portions of the leak chases and the associated test connections. NextEra staff further performed an engineering evaluation to evaluate the examination results and concluded that the water/moisture was not groundwater but was sourced from inside containment, most likely the refueling cavity, and that, based on the water chemistry, particularly the high pH, the observed surface corrosion did not have an unacceptable effect on the structural integrity of the containment liner. NextEra staff's corrective actions included installing a pressure gauge on leak chase HL5-11 to determine the pressure of water in the leak chase, developing a plan for the Spring 2023 (OR22) outage to further confirm the source of the water, and performing an Integrated Leak Rate Test (ILRT) on the containment with the leak chase plugs removed. Subsequent to the inspection, NextEra staff submitted a description of their evaluation and conclusions in their fall 2021 OR21 Owners Activity Report (ML22024A383).</p> <p>The inspectors reviewed NextEra's engineering evaluation and did not identify any findings. The inspectors noted that the chemistry samples varied in terms of results and that continued augmented monitoring by NextEra staff was an appropriate corrective action to verify their conclusions in accordance with their corrective action process.</p>	

Failure to Perform Adequate Evaluations of Safety-Related Plant Structures, Including Structures Potentially Impacted by Alkali Silica Reaction			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Barrier Integrity	Green FIN 05000443/2021004-02 Open/Closed	None (NPP)	71111.12
<p>The inspectors identified a Green finding when, in 2017, the licensee did not document and evaluate conditions observed as indicative of impacts from ASR identified in the reactor cavity pit area in accordance with NextEra Engineering Department Standard 36180, "Structural Monitoring Program."</p> <p><u>Description:</u> The reactor cavity pit area is a normally inaccessible area inside containment that provides an access point for the area under the reactor vessel and a pathway for in-core instrumentation cabling to reach the underside of the reactor vessel. The reactor cavity pit area is a seismic category I concrete structure and is categorized as part of the containment internal structure (CIS). As part of the Structures Monitoring Program field inspection scheduled during refueling outage OR21 (Fall 2021), NextEra personnel identified spalling and bowing of the floor slab and adjacent metal deck grating located in the reactor cavity pit area North end. This spalling was not present during the last performed field inspection which took place in OR19 (Fall 2018). The field inspections for the reactor cavity pit area and the remainder of the other areas in the CIS are currently performed every three years in accordance with the Structures Monitoring Program.</p> <p>NRC inspectors reviewed previous structures monitoring and corrective action program records for the reactor cavity pit area and conducted walkdowns of the area. The inspectors noted that this same floor slab location had been repaired previously in 2012. Specifically, a piece of concrete spalled from both the top and bottom of the floor slab and was repaired per applicable code guidance. Additionally, the inspectors determined NextEra staff completed field inspections of the reactor cavity pit area in 2014 and 2017. These walkdowns by NextEra were completed to prepare to implement their license amendment request regarding ASR, which was under NRC staff review at the time. Their field inspections noted the presence of a horizontal/circumferential crack (~1/8" at its widest spot) along the West keyway wall opening, as well as a series of small (~0.01") horizontal cracks on the East wall of the North extension area. This vertical wall is perpendicular to and in direct contact with the floor slab exhibiting bowing and spalling. In 2017, NextEra staff conducted an evaluation of the ~1/8" crack in the West keyway wall for reductions in shear capacity of the wall as well as an evaluation of the effect of losing the top 1/2" of concrete of the floor slab on the structural capacity at this section and determined that there was little effect on the capacity or strength of the structural members. NextEra staff attributed the spalling and cracks observed to thermal effects, restraint of shrinkage during/after construction, and/or effects of differential cooling and drying of thick concrete elements. NextEra staff further noted that the cracks did not exhibit visible symptoms suggestive of ASR presence in the concrete element itself (groundwater intrusion, pattern cracking, or dark staining around cracks). NextEra staff performed an additional walkdown per the Structures Monitoring Program in 2018. According to NextEra staff, the width of the crack observed along the West keyway wall opening as well as the series of horizontal cracks along the East wall of the North extension area had not appeared to change since their initial measurements in 2017.</p> <p>During a walkdown conducted during OR21, NRC inspectors observed a horizontal/circumferential crack (~1/8" at its widest spot) along the East keyway wall opening almost identical to the crack on the adjacent West keyway wall. The NRC inspectors also</p>			

observed deformation of the metal deck grating (exhibiting ~1" of vertical bowing) adjacent to the spalled floor slab. The inspectors determined that this deformed deck grating and crack in the East keyway wall opening, while present in photographs from 2017, had not been documented or evaluated by NextEra in walkdown reports or subject to evaluation.



**Figure 1: Reactor cavity pit overhead view**

The NextEra Engineering Department Standard 36180, "Structural Monitoring Program" includes detailed guidance for the conduct of the structural condition monitoring program to meet the requirements of 10 CFR 50.65, the Maintenance Rule. The program includes requirements for monitoring structural deficiencies as well as impacts from ASR on Seabrook structures. These requirements were implemented by NextEra in December 2016 and incorporated by NRC approved license amendment in March 2019. The Structures Monitoring Program requires that field inspection findings categorized as "unacceptable" should be evaluated against the Structures Monitoring Program performance criteria and provides a set of criteria defining "unacceptable" conditions.

The inspectors noted that the deformation of the metal deck grating as well as the crack in the East keyway wall opening met the criteria for "unacceptable" in the Structures Monitoring Program (passive settlement or deflections outside of original design limits and passive cracks more than 0.04" in maximum width) and should have been documented and included in the evaluations conducted as a result of the 2017 field inspections.

There was also an opportunity for NextEra staff to document and evaluate these conditions as part of their 2018 structures monitoring walkdown. As part of the methodology for evaluating building deformation impacts caused by ASR, the program provides a table of criteria with specific visual features for rating ASR as "possible" or "likely" and states that locations exhibiting such criteria shall be accounted for in an appropriate ASR structural

evaluation. Two of the “likely” criteria for visible features suggestive of ASR include “structure shows symptoms of increase in concrete volume leading to concrete spalling, displacement, and misalignment of elements” and “extensive map cracking or pattern cracking aligned with major reinforcement or stress.” The inspectors determined that the observed series of horizontal flexural type cracking on the East side wall of the North extension area, the spalling of the floor slab cover concrete and bowing of the adjacent metal deck grate of the North extension area floor slab, as well as the horizontal/circumferential cracks observed on the East and West keyway wall openings met these “likely” criteria and were suggestive of possible ASR-induced building deformation. Per the Structures Monitoring Program ASR methodology document, an evaluation of the impacted areas of the CIS structure should have been conducted which would have included additional ASR load demands for comparison to the total structural load in accordance with the code of record, ACI 318-71, to ensure that the structure remained in compliance with the design code of record. The inspectors determined that the failure to document unacceptable structural deficiencies observable during field inspections in 2017 and 2018 and the failure to subsequently conduct an evaluation of added load demands from potential ASR-related building deformation was a performance deficiency.

Corrective Actions: After discussions with NextEra, a condition report was generated committing to the performance of a Stage 2 ASR-related structural evaluation per the Structures Monitoring Program methodology document as well as enhanced monitoring of the structural indications observed in the reactor cavity pit area. Additionally, NextEra generated an Operability Determination for the CIS. The Operability Determination assumed a reasonable ASR expansion in the reactor cavity pit walls, reactor shield walls, and containment foundation based on the indications observed. The Operability Determination applied the load from this expansion on the impacted structures and demonstrated that, when cracked section properties were considered (as allowed by the approved Structures Monitoring Program), the additional estimated load could be accommodated within the existing margin of the structures. NRC inspectors, including inspectors from the regional office and headquarters, reviewed the Operability Determination and determined that there was sufficient technical rigor to support NextEra's conclusions that the structure remained capable of performing its safety function. The inspectors noted that a more detailed finite element analysis was underway in accordance with the Seabrook Structures Monitoring Program methodology document.

Corrective Action References: AR 02408546

Performance Assessment:

Performance Deficiency: The inspectors determined that NextEra's failure to perform adequate inspections and evaluations of safety-related plant structures, including structures potentially impacted by ASR, in accordance with the Structures Monitoring Program was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, undetected growth and degradation due to ASR could occur since additional monitoring had not been implemented and potential additional loads from ASR expansion would not be analyzed for comparison against the design code of record.

Significance: The inspectors assessed the significance of the finding in accordance with IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” and was

determined to be of very low safety significance (Green) since the safety-related structure maintained its operability.

**Cross-Cutting Aspect: Not Present Performance.** No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance. The performance deficiency occurred when NextEra did not perform adequate inspections and evaluations of safety-related plant structures, including structures potentially impacted by ASR, in 2017.

**Enforcement:** Inspectors did not identify a violation of regulatory requirements associated with this finding.

**Failure to Provide Accurate Dose Rates to an Individual Prior To Entry into a High Radiation Area**

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Occupational Radiation Safety	Green NCV 05000443/2021004-03 Open/Closed	[H.12] - Avoid Complacency	71124.01

The inspectors identified a Green finding and associated NCV of Technical Specification 6.11, High Radiation Area, when the licensee allowed an individual to make entry into a high radiation area where dose rates had changed and the worker's radiological briefing did not reflect the prevailing dose rates. Specifically, the individual received a briefing for entry into a high radiation area and the radiological survey conditions provided did not reflect the prevailing radiological conditions in the area. This resulted in the individual being unaware of the elevated dose rates and receiving more radiation exposure than anticipated.

**Description:** On October 5, 2021, an individual was provided a briefing to enter a high radiation area in the 'A' and 'B' RHR vaults utilizing radiological surveys that were conducted on July 7 and July 28, 2021, and available in the licensees' electronic survey database. The worker was briefed that general area dose rates were 6-8 mrem/hr, however the latest surveys conducted on October 4, 2021, showed general area dose rates up to 150 mrem/hr. The increased dose rates were due to the planned shutdown on October 2, 2021, that caused an expected release of radioactive contamination into the reactor coolant system. Contamination released into the reactor coolant system caused an increase in the dose rates in the RHR vaults and certain other areas of the plant.

The October 4, 2021, survey identifying the higher general area dose rates was conducted after this perturbation but was not used to brief the worker prior to their entry into this area. The worker conducted a walkdown of the RHR vaults on October 5, 2021, and when the individual noticed that the electronic dosimeter indicated accumulated dose that exceeded the expected dose, the individual exited the area and notified radiation protection personnel. If the individual's travel path had been slightly altered, the individual could have entered areas of higher radiation levels without being knowledgeable of the prevailing dose rates. The individual was on Radiation Work Permit 0101, Task 20, which had alarm setpoints of 10 millirem and 50 millirem per hour. The individual received 4.2 millirem of the 10 millirem alarm setpoint and the highest dose rate recorded on the dosimeter was approximately 47 millirem per hour.

**Corrective Actions:** The licensee implemented the following corrective actions: entered the event into its corrective action program as AR 02406458; conducted dose rate surveys in the area; conducted an investigation and a performance analysis; generated an action item to

update the electronic survey database system procedure; coached the radiation protection staff that provided the high radiation area briefing to the individual; reviewed the electronic dosimeter database to identify if any workers had accessed the area and received an alarm; suspended the use of the electronic survey database system for conducting radiological briefings; and communicated the issue to all radiation protection staff.

Corrective Action References: AR 02406458

Performance Assessment:

Performance Deficiency: The licensee failed to implement Technical Specification 6.11, High Radiation Area, and allowed an individual entry into a high radiation area without ensuring the individual was knowledgeable of the dose rate levels in the area. Specifically, the individual received a radiological briefing for a high radiation area entry and that briefing cited pre-shutdown surveys that did not reflect prevailing radiological conditions in the area.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Program & Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, worker entry into areas where workers are not made knowledgeable of current dose rates could lead to unintended dose. The inspectors determined that the performance deficiency was similar to example 6.a in IMC 0612, Appendix E. In this instance, the lack of an accurate survey record resulted in the licensee not properly informing workers of the radiological hazards and the worker was subjected to unintended dose (i.e. the dose rates exceeded the briefed conditions).

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix C, "Occupational Radiation Safety SDP." The inspectors determined that the finding was of very low safety significance (Green) because: (1) it did not involve as-low-as-reasonably-achievable planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised.

Cross-Cutting Aspect: H.12 - Avoid Complacency: 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. Error reduction tools may have increased the likelihood that the individual providing the radiological briefing would have challenged the dose rate survey records and identified that the plant conditions were significantly different after the plant shutdown.

Enforcement:

Violation: Technical Specification 6.11, High Radiation Area, states, in part, each high radiation area, as defined in 10 CFR Part 20, in which the intensity of radiation is equal to or less than 1000 millirem per hour at 30 cm (12 in.) from the radiation source or from any surface that the radiation penetrates shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a radiation work permit; and that any individual or group of individuals permitted to enter such areas shall be provided with a radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received; and, entry into such

areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them.

Contrary to the above, on October 5, 2021, NextEra Energy Seabrook provided a briefing to a worker on the radiological conditions in a high radiation area [the 'A' and 'B' RHR vaults], and failed to make the individual knowledgeable of the prevailing dose rate levels in the area as specified by Technical Specification 6.11. Specifically, the radiological briefing provided to the individual for entry into a high radiation area was conducted using outdated survey data that did not reflect the prevailing conditions for the area.

Enforcement Action: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Observation: Semi Annual Trend Review

71152

The inspectors reviewed NextEra's corrective action program for trends that might be indicative of more significant safety issues. The inspectors reviewed condition reports, level one assessments, system health reports, and control room/panel deficiencies. In particular, the inspectors evaluated the condition reports generated during the second half of 2021 to identify any negative trends in equipment and human performance, as well as problem identification and resolution. The inspectors determined that the issues were evaluated by NextEra staff for potential trends at a low threshold and resolved within the scope of the corrective action program.

The inspectors noted three trends that NextEra identified this period. The first is an adverse trend associated with the inappropriate storage of combustible materials. There were 25 action requests that identified improperly stored combustible materials, some of which were in high fire risk areas since July 2021. The station's management review committee identified this trend in December 2021 (AR 2412903) and assigned a review of this trend. The second is an adverse trend associated with FLEX equipment deficiencies. The inspectors again noted that the station's management review committee identified this trend (AR 2414665) and that the relevant action requests were dispositioned in accordance with station procedures. Finally, the inspectors reviewed a series of condition reports related to issues identified during reactor trip switchgear maintenance and operating experience reviews. These issues included reactor trip bypass breaker under voltage relay coil voltage drop out setpoint drifting as well as operating experience relevant to Industrial Control ARD-440 relays found on the reactor trip breakers and reactor trip bypass breakers. The inspectors determined that NextEra personnel had appropriately entered the conditions into the corrective action program and evaluated the identified conditions. The inspectors noted that the station's management review committee identified a potential trend related to these issues (AR 02410755). Corrective actions included the scheduling of proactive replacement of potentially impacted ARD-440 relays as well as scheduling replacement of all undervoltage relay coils in breakers with no recent replacement history.



Observation: Containment Integrated Leak Rate Testing Requirements	71152
<p>The inspectors reviewed NextEra staff's evaluations of their periodic integrated leak rate tests (ILRT) conducted with containment liner leak chase plugs installed. In reviewing NextEra's leak chase plug examination results in October 2021, the inspectors questioned whether the plugs were required to be installed or removed during integrated leak rate testing. In discussions with NextEra staff, the inspectors determined this issue had been addressed in NextEra's corrective action process under CR 07-03270 dated September 12, 2007, and AR 01809561, dated October 15, 2012. In reviewing these documents, the inspectors questioned NextEra staff regarding the construction-era containment liner design specification stipulating these plugs to be removed during pre-operational ILRTs. NextEra staff entered this question into their correction action program under CR 02408524.</p> <p>The inspectors noted that the 2007 and 2012 evaluations had identified the regulatory and industry standards related to the leak chase plugs. Specifically, in the 2007 evaluation, the licensee identified that the construction specification stipulated the plugs be removed during pre-operational ILRTs. The evaluation referred to Paragraph 5.1.1 of the United Engineers and Construction (UE&amp;C) containment design specification 9763-006-80-1, dated June 27, 1975, which stipulated all leak chases that were provided over liner weld joints in areas not accessible, to be vented to the containment atmosphere during the two pre-operational ILRTs. The 2012 condition report evaluation affirmed the pre-operational ILRT requirements consistent with the UE&amp;C design specification.</p> <p>The inspectors also identified the licensee did not evaluate the inconsistency between their internal, construction-era design specification and the actual condition of the liner leak chase plugs. Specifically, the design specification stipulated the preoperational structural integrity test (SIT) and ILRT to be conducted with the leak chases "vented to containment," i.e., with the leak chase plugs removed. However, the inspectors reviewed available, relevant records and determined that the leak chase plugs were likely installed for the preoperational SIT (1986) and ILRTs (1986 and 1989). As a result, in October 2021, NextEra staff generated AR 02408524, which detailed that the leak chase plugs had been installed during the pre-operational SIT and ILRTs, inconsistent with the original design specification and its subsequent revisions. NextEra staff documented this issue in a prompt Operability Determination as a non-conforming condition against the original design specification testing documentation.</p> <p>To assess the impact of the inconsistency between the design specification and the actual condition of the liner leak chase plugs during the pre-operational SIT and ILRTs, the inspectors evaluated historical ILRT and other construction-era records and verified, on a sampling basis, compliance to applicable regulatory and industry standards. These involved 10 CFR Part 50, Appendix J, "Leakage Rate Testing of Containment of Light-Water Cooled Nuclear Power Plants," which requires the testing of the leak-tightness of the liner, and the ASME Boiler and Pressure Vessel Code, Section III, Division 2, Article CC, which requires applicable construction and testing activities of the liner and the containment structure. The inspectors also reviewed NRC-required test reports, associated work orders, test and inspection procedures, NRC inspection reports, and other documentation covering activities from construction, such as non-destructive evaluation of liner and leak chase welds and post-weld leak testing to meet applicable regulatory and construction specification requirements.</p> <p>The inspectors concluded that although the pre-operational SIT and ILRT test configurations did not align with the original construction design specification that called for the removal of the leak chase plugs, all regulatory requirements associated with these tests were met.</p>	

Specifically, the applicable portions of containment, the containment liner, and safety systems were exposed to test pressures consistent with the design basis post-accident atmospheric conditions. In addition, the calculated leakage values for the pressure testing, in combination with the valve and system leak testing that is performed, resulted in acceptable values well below the regulatory limits. These satisfactory test results ensure that the regulatory limits for post-accident site boundary radiation exposure of 10 CFR Part 100 would not be exceeded.

The inspectors did not identify a performance deficiency related to this pre-operational testing inconsistency and noted that NextEra plans to vent the containment leak chases during the ILRT scheduled for OR22 (Spring 2023). Additionally, both the containment liner seam welds and leak chase attachment welds and the associated piping segments had undergone applicable ASME-required non-destructive examinations, which included vacuum-box testing, and were satisfactorily leak-tested to pressures consistent with post-accident design pressures prior to plant operation.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On December 2, 2021, the inspectors presented the Radiation Protection inspection results to Mr. Brian Booth, Site Vice President and other members of the licensee staff.
- On January 10, 2022, the inspectors presented the integrated inspection results to Mr. Grant Melvin, Site Operations Director and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152	Miscellaneous	50-443/78-14	NRC Office of Inspection & Enforcement, Inspection Report	11/01/1978
		50-443/83-17	NRC Region 1 Inspection Report	12/19/1983
		50-443/86-52	NRC Region 1 Special Inspection Report	12/19/1986
		50-443/92-26	NRC Inspection Report	12/22/1992
		Test No. 1-PT(I)-36	Primary Containment Structural Integrity Test, Revision 1, Pre-Operational SIT	March 1986
		Test No. 1-PT(I)-37.1	Reactor Containment Integrated Leak Rate Test, Revision 1, Pre-Operational ILRT	March 1986
		WS-2	Containment Liner Weld Examination Specification	12/26/1984
	NDE Reports	HL1-25	Pittsburgh – Des Moines Steel Co., Leak Channel Test Records	November 1981
		Seam Nos. 7, 10, 11, 57A and 74	Pittsburgh – Des Moines Steel Co., Vacuum Box Test Records, Containment Liner Floor Plate	March 1979
		Seam Nos. 9M, 10M, and 11M	Pittsburgh – Des Moines Steel Co., Vacuum Box Test Records, Containment Liner Floor Plate	February 1981
		Zone HL6-4	Pittsburgh – Des Moines Steel Co., Leak Channel Test Records	December 1979
		Zones HL6-2 and 3	Pittsburgh – Des Moines Steel Co., Leak Channel Test Records	November 1989
	Procedures	EX1803.001	Reactor Containment Integrated Leak Rate Test – Type A, Revision 1, (Pre-Operational ILRT)	November 1989
	Work Orders	0640252	EX1803.001, Reactor Containment Integrated Leak Rate Test – Type A, Revision 4, (Operational ILRT)	April 2008