



May 20, 2011

10 CFR 50.73

Docket No. 50-443

SBK-L-11108

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

Seabrook Station

Licensee Event Report (LER) 2011-001-00

Noncompliance with Technical Specification for Leakage Detection Instruments

Enclosed is Licensee Event Report (LER) 2011-001-00. This LER reports an event that was discovered at Seabrook Station on March 24, 2011. This event is being reported pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

Should you require further information regarding this matter, please contact Mr. Michael O'Keefe, Licensing Manager, at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC

A handwritten signature in black ink, appearing to read "Paul Freeman", written over a horizontal line.

Paul Freeman  
Site Vice President

cc: NRC Region I Administrator  
G. E. Miller, NRC Project Manager  
W. J. Raymond, NRC Senior Resident Inspector

Handwritten initials in black ink, possibly "JED" or "JEDD" with "M" below it.

**LICENSEE EVENT REPORT (LER)**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

**1. FACILITY NAME** Seabrook Station **2. DOCKET NUMBER** 05000443 **3. PAGE** 1 OF 3

**4. TITLE**  
Noncompliance with Technical Specification for Leakage Detection Instruments

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	24	2011	2011	001	00	05	20	2011	FACILITY NAME	DOCKET NUMBER

**9. OPERATING MODE** 1

**10. POWER LEVEL** 100%

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)**

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

NAME: Michael O'Keefe, Licensing Manager TELEPHONE NUMBER (Include Area Code): 603-773-7745

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

**14. SUPPLEMENTAL REPORT EXPECTED**  
 YES (If yes, complete 15. EXPECTED SUBMISSION DATE)  NO

**15. EXPECTED SUBMISSION DATE**  
 MONTH:      DAY:      YEAR:

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)**

On March 24, 2011 during operation in mode 1 at 100% power, station personnel, while reviewing station documents, determined that one of the two containment gaseous radioactivity monitors did not meet the qualifications for a reactor coolant system leakage detection monitor required by the technical specifications (TS). The indication provided by the backup gaseous monitor did not meet the seismic requirements of Regulatory Guide (RG) 1.45, Reactor Coolant Pressure Boundary Leakage Detection Systems, and the monitor should not have been used to satisfy TS requirements. TS 3.4.6.1 requires a containment gaseous monitor and a particulate monitor. On several occasions, the plant operated with the normal particulate and gaseous monitors out of service and relied on the backup gaseous monitor to meet TS requirements. This situation resulted in a condition prohibited by the TS when plant operation continued with two inoperable leakage detection monitors for longer than the 6 hours permitted by the TS. No adverse consequences resulted from this event. The cause of the condition was the design change that installed the backup monitor in the early 1990's did not qualify the monitor's indication to seismic requirements in accordance with RG 1.45. The condition was corrected in April 2011 by a design change that upgraded the gaseous monitor indication to meet seismic requirements.

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CONTINUATION SHEET**

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**NARRATIVE**

**Description of Event**

On March 24, 2011 during operation in mode 1 at 100% power, station personnel, while reviewing station documents, determined that one of the two containment atmosphere gaseous radioactivity monitors did not meet the qualifications for a reactor coolant system (RCS) leakage detection monitor required by the technical specifications (TS). The indication provided by the backup gaseous monitor did not meet the seismic requirements of Regulatory Guide (RG) 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," and the instrument should not have been used as a monitor to satisfy TS requirements. TS 3.4.6.1 requires a containment atmosphere gaseous monitor and a particulate monitor. On several occasions, the plant operated with the normal particulate and gaseous monitors out of service and relied on the non-qualified backup gaseous monitor to meet TS requirements. This situation resulted in a condition prohibited by the TS when plant operation continued with two inoperable leakage detection monitors for longer than the six hours permitted by the TS.

**Cause of Event**

The cause of the condition was the design change that installed the backup containment atmosphere gaseous radioactivity monitor in the early 1990's did not qualify the monitor's indication to seismic requirements in accordance with RG 1.45.

**Analysis of Event**

TS 3.4.6.1, RCS Leakage Detection Systems, requires three leakage detection systems [IJ, MON] including a (1) containment atmosphere particulate radioactivity monitoring system [IL, DET], (2) containment drainage sump level monitoring system [IJ, LI], and (3) containment radioactive gas monitor [IL, DET]. The TS allows operation for up to 30 days with one detection system inoperable, and a shutdown is required in six hours with more than one system inoperable.

The containment atmosphere activity monitor, RM-6526, which is located outside containment, monitors a sample drawn from the containment atmosphere for particulate and gaseous radioactivity. One of the radiation detectors on RM-6526 is used to monitor the particulate filter and a second detector monitors noble gas. An additional monitor, RM-6548, which is located within the containment, is provided as a backup to the RM 6526 gaseous radiation monitor. The TS Bases and the UFSAR discuss that the leakage detection systems meet the requirements of RG 1.45. Regulatory position C.6 of RG 1.45 requires that "The leakage detection systems should be capable of performing their functions following seismic events that do not require plant shutdown." This position identifies that, with the exception of the particulate monitor, which has to be qualified to withstand a safe shutdown earthquake, the credited leak detection monitors have to be capable of withstanding seismic events that do not require plant shutdown. Therefore, the gaseous monitors need to be seismically qualified to withstand an operating basis earthquake.

The communication ports from RM-6548 are connected to a radiation data management system (RDMS) [IL] data bus loop, which is also shared by 28 other radiation monitors. Some of the monitors on the loop are qualified as class 1E devices and have isolators [IL, IB] installed to ensure that faults on the data loop will not compromise the safety function of the monitor. However, no isolators were installed in the data loops at RM-6548. With this configuration, the RDMS data connection to RM-6548 is potentially susceptible to failures within other monitors or faults on the data loop that could result from a seismic event. Regulatory position C.7 of Regulatory Guide 1.45 states that indicators and alarms for each leakage detection system should be provided in the main control room. Since the indication provided by RM 6548 is not seismically qualified, it does not meet the requirements of the regulatory position.

Normally, RM 6526 is operating and satisfies the requirements of TS 3.4.6.1 for the particulate and gaseous monitors; however, with RM 6526 out of service, neither monitor is available. Therefore, during operation with RM 6526 out of service, RM 6548 had been credited as the required gaseous monitor so that the plant could continue to operate in accordance with the action for an inoperable particulate radioactivity monitoring system. Because RM 6548 should not have been utilized for satisfying the TS requirement, operating in this condition resulted in a violation of the TS.

With RM 6526 out of service, neither the containment atmosphere particulate or gaseous monitor required by TS 3.4.6.1 was operable. In this condition, TS 3.4.6.1 requires a plant shutdown to mode 3 within 6 hours and to mode 5 within 36 hours. However, a review of plant operations identified several instances in which the plant operated for a period in excess of six hours with RM 6526

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**NARRATIVE**

out of service while relying on non-qualified gaseous monitor RM 6548 to satisfy the TS requirement for an operable gaseous monitor. This condition existed on October 5, 2010; December 15, 2010, January 4, 2011; and March 10, 2011. Since RM 6548 cannot be used as one of the leakage detection instruments credited for compliance with TS 3.4.6.1, operating with RM 6526 out of service for greater than six hours resulted in operation in a condition prohibited by the TS. Therefore, this condition is reportable in a licensee event report (LER) in accordance with 10 CFR 50.73(a)(2)(i)(B).

This event is of regulatory importance because it resulted in a condition prohibited by the TS; however, the condition is not significant to safety. No adverse consequences resulted from this condition, and the event had no adverse impact on the health and safety of the public or the plant and its personnel. No other structures, systems, or components were inoperable at the start of the event and contributed to this event. This event did not involve a safety system functional failure.

**Corrective Actions**

The station implemented a design change that upgraded the seismic qualification of the containment atmosphere gaseous radioactivity monitor (RM 6548) to meet the requirements of RG 1.45.

**Additional Information**

The Energy Industry Identification System (EIIS) codes are included in this LER in the following format: [EIIS system identifier, EIIS component identifier].

**Similar Events**

LER 2004-001 documented a similar condition that resulted in a condition prohibited by the TS. This LER reported that the accident monitoring instruments associated with containment enclosure negative pressure were determined to be inoperable because they did not encompass the required range of pressure necessary to monitor the variable under all conditions.