NEXTera ENERGY SEABROOK

December 2, 2011

10 CFR 50.73

Docket No. 50-443
SBK-L-11231

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

Seabrook Station

Licensee Event Report (LER) 2011-002-00

Automatic Reactor Trip Following Loss of Main Feed Pump

Enclosed is Licensee Event Report (LER) 2011-002-00. This LER reports an event that occurred at Seabrook Station on October 6, 2011. This event is being reported pursuant to the requirements of 10 CFR 50.73(a)(2)(iv)(A).

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

Paul Freeman
Site Vice President

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

IE22
NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

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.resourse@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.

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4. TITLE

Automatic Reactor Trip Following Loss of Main Feed Pump

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
10	06	2011	2011	- 002	- 00	12	02	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)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☒ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Michael O'Keefe, Licensing Manager	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)*

At approximately 1226 on October 6, 2011 with the plant operating in Mode 1 at 100% power, Seabrook experienced a plant trip on low steam generator water levels following loss of an operating main feed pump. The main feed pump tripped on low suction pressure while restoring a condensate pump to service following maintenance. During restoration of the pump, air entered the condensate system and caused a drop in condensate pump discharge pressure, which resulted in a low pressure condition at the suction of the main feed pump. The trip of the main feed pump on low suction pressure initiated a turbine setback; however, with reduced feedwater flow, steam generator levels decreased to the low level reactor trip setpoint. The automatic systems functioned as designed. The emergency feedwater system automatically actuated and recovered steam generator levels. No adverse consequences resulted from this event.

The cause of this event was the lack of a procedure for restoring a condensate pump to service during operation at power. The corrective action revised the operating procedure to provide instructions for filling and venting a condensate pump following maintenance.

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NARRATIVE

Description of Event

At approximately 1226 on October 6, 2011 with the plant operating in Mode 1 at 100% power, Seabrook experienced a plant trip on low steam generator [AB, SG] water levels following loss of an operating main feed pump [SJ, P]. The main feed pump tripped on low suction pressure while restoring a condensate pump [SD, P] to service following maintenance. During restoration of the pump, air entered the condensate system and caused a drop in condensate pump discharge pressure, which resulted in a low pressure condition at the suction of the main feed pump. The trip of the main feed pump on low suction pressure initiated a turbine [TA, TRB] setback; however, with reduced feedwater flow, steam generator levels decreased to the low level reactor trip setpoint. The automatic systems functioned as designed. The emergency feedwater [BA] system automatically actuated and recovered steam generator levels.

Cause of Event

The root cause of the air intrusion into the condensate system, which resulted in a trip of the main feed pump and the subsequent reactor trip, was the lack of a procedure for restoring a condensate pump to service during operation at power.

Analysis of Event

The condensate system includes three fifty percent capacity condensate pumps with two pumps in service during normal operation. Two fifty percent capacity turbine-driven main feed pumps receive water from the condensate system and deliver water to the steam generators. The main feed pumps are provided with an automatic trip on low suction pressure.

The plant trip occurred during restoration of a condensate pump, which had been removed from service for replacement of the rotating element. During venting of the condensate pump, air intrusion into the operating condensate pumps caused a sharp drop in discharge pressure and large flow oscillations. The pressure drop exceeded the main feed pump low suction pressure trip setpoint, and the trip of the feed pump initiated a turbine setback. In response to lowering steam generator levels as a result of the setback, the Unit Shift Supervisor directed a manual reactor trip; however, an automatic reactor trip actuated on low steam generator levels before the operators initiated a manual trip. The emergency feedwater system automatically actuated and recovered steam generator levels.

This event resulted in a valid actuation of the reactor protection system and met the reporting criteria of 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72 (b)(3)(iv)(A). A four hour report was made to the NRC at approximately 1517 on October 6, 2011 (event number 47327). This event is of regulatory significance because it resulted in actuation of a system provided to mitigate the consequences of an accident. This event had no adverse impact on the plant or on the health and safety of the public because any failure in the non-safety class portion of the condensate and feedwater systems has no effect on the safety of the reactor. No inoperable structures, systems, or components contributed to this event. This condition did not involve a safety system functional failure.

Corrective Actions

The corrective action for the root cause of this event revised the operating procedure to provide instructions for filling and venting a condensate pump following maintenance.

Additional Information

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

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NARRATIVE

Similar Events

LER 2005-005 reported a similar condition that resulted in a valid actuation of the reactor protection system (RPS) while the plant was shutdown. This LER reported an actuation of the RPS on low steam generator water level as the result of a procedure deficiency.