NEXTera ENERGY SEABROOK

February 14, 2012

10 CFR 50.73

Docket No. 50-443
SBK-L-12036

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

Seabrook Station

Licensee Event Report (LER) 2011-003-00

Offsite AC Source Inoperable during Diesel Generator Operation

Enclosed is Licensee Event Report (LER) 2011-003-00. This LER reports an event that occurred at Seabrook Station on December 21, 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

Paul Freeman
Site Vice President

cc: NRC Region I Administrator
J.G. Lamb, 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.

LICENSEE EVENT REPORT (LER)

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4. TITLE

Offsite AC Source Inoperable during Diesel Generator Operation

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
12	21	2011	2011	- 003 -	00	02	14	2012	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

1

10. POWER LEVEL

065%

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

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

On December 21, 2011, during operation at approximately 65% power, station personnel identified a condition that previously rendered one of the offsite AC power sources inoperable. The plant design includes two independent offsite AC sources: (1) one circuit through the unit auxiliary transformers (UAT) to both trains of emergency buses, and (2) a second source through the reserve auxiliary transformers (RAT) to both trains of emergency buses. Offsite power is normally provided through the UAT, and the RAT supply is in standby. Operability of the RAT supply is contingent on the ability of the system to perform a fast transfer to the RAT supply upon opening of a UAT supply breaker. A review of the system design determined that when the emergency diesel generator (EDG) is operating in parallel with offsite power, the fast transfer feature to the RAT supply is unavailable, rendering this offsite AC source inoperable. On at least two occasions, this previously unrecognized condition rendered the offsite AC source inoperable for a period longer than permitted by the technical specifications.

This event resulted from a failure to recognize the impact of EDG operation on the fast transfer feature. Operations issued guidance that the offsite AC source is inoperable during parallel operation of an EDG. No adverse consequences resulted from the event.

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NARRATIVE

Description of Event

On December 21, 2011, during operation at approximately 65% power, station personnel identified a condition that previously rendered one of the offsite AC power sources inoperable. The plant design includes two independent offsite AC sources: (1) one circuit through the unit auxiliary transformers (UAT) [EA, XFMR] to both trains of emergency buses [EB, BU], and (2) a second source through the reserve auxiliary transformers (RAT) [EA, XFMR] to both trains of emergency buses. Offsite power is normally provided through the UAT, and the RAT supply is in standby. Operability of the RAT supply is contingent on the ability of the system to perform a fast transfer to the RAT supply upon opening of a UAT supply breaker. A review of the system design determined that when the emergency diesel generator (EDG) [EK, DG] is operating in parallel with offsite power, the fast transfer feature to the RAT supply is unavailable, rendering this offsite AC source inoperable. On at least two occasions, this previously unrecognized condition rendered the offsite AC source inoperable for a period longer than permitted by the technical specifications (TS).

Cause of Event

Until 2005, the station considered the TS requirement for two operable offsite circuits between the transmission network and the onsite distribution system met with one independent offsite source aligned to each train of emergency buses. In 2005, the station changed its approach to satisfying the TS by requiring each train of emergency buses to have two independent offsite sources available, and revised the TS Bases to include this requirement. The root cause of the failure to recognize the impact of EDG operation on the fast transfer feature was that the TS Bases change process did not ensure that appropriate technical evaluations were performed to review the change implications against all normal plant configurations.

Analysis of Event

The plant design includes two independent offsite AC sources: (1) one circuit through the UATs to both trains of emergency buses, and (2) a second source through the RATs to both trains of emergency buses. Offsite power is normally provided through the UAT, and the RAT supply is in standby.

The 4160 volt emergency buses are provided with a feature that automatically transfers power sources. With the UAT providing power to an emergency bus, opening of the UAT incoming line breaker initiates an automatic transfer from the UAT to the RAT source. A high-speed static synchronism check relay [EA, 25] will allow the RAT incoming line breaker [EA, BKR] to close, thus completing the transfer, if both the voltage and phase angle between the bus and RAT source are within limits.

During operation of the EDG in parallel with offsite power, if the UAT breaker should open, a fast transfer to the RAT will not occur immediately. First, the diesel breaker will receive a trip signal, and after it opens, the synchronism check relay will re-energize. Then, if the bus and RAT are in synchronism, the fast transfer will occur. If the bus and RAT are not in synchronism, the RAT breaker will close when the residual bus voltage relays operate.

TS 3.8.1.1, AC Sources – Operating, requires two operable offsite circuits between the transmission network and the onsite distribution system. To meet the TS 3.8.1.1 requirement for two independent offsite sources, each emergency bus must (1) be energized from its UAT, and (2) have its RAT supply available via fast transfer capability. Otherwise, the appropriate action of TS 3.8.1.1 must be entered. The unavailability of the UAT to RAT fast transfer feature during operation with the EDG in parallel with offsite power resulted in a failure to meet the limiting condition for operation (LCO) of TS 3.8.1.1.

On October 31, 2011, EDG-B operated in parallel with offsite power for 110 minutes during surveillance testing. However, the offsite AC source through the RATs was not declared inoperable during this time and the action of TS 3.8.1.1 was not entered. This condition resulted in a violation of the TS because the LCO was not met with one offsite source inoperable, and the one-hour surveillance requirement specified by the action was not performed. Therefore, this event resulted in a condition prohibited by the TS.

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NARRATIVE

EDG-A was inoperable from January 10 to January 17, 2011 for a planned maintenance outage. During this period, EDG-A operated in parallel with offsite power for post-maintenance testing for a period of approximately 27 hours. During the period of EDG operation, both the EDG and the offsite source through the RAT were inoperable. The offsite AC source through the RAT was not declared inoperable during this time and the actions of TS 3.8.1.1 were not entered because it was unknown that the condition rendered the AC source inoperable. With both an EDG and an offsite source inoperable, the requirements of TS action 3.8.1.1.c were not met. Specifically, the action requires restoring at least one of the inoperable sources to operable status within 12 hours or a plant shutdown is required. In this situation, both sources were inoperable for approximately 27 hours while the plant continued to operate in mode 1. As a result, the condition resulted in an operation prohibited by the TS.

This event is of regulatory significance because it met the reporting criterion of 10 CFR 50.73 (a)(2)(I)(B) for a condition prohibited by the TS. However, this event had no adverse impact on the health and safety of the public or the plant and its personnel. Although the UAT to RAT fast transfer feature was not immediately available when the EDG was operating in parallel with offsite power, a fast transfer would have occurred following opening of the EDG breaker if the bus and RAT were in synchronism. If the bus and RAT were not in synchronism, the RAT breaker would have closed when the residual bus voltage relays actuated. No plant transients, systems actuations, or consequences resulted from this event. This event did not involve a safety system functional failure.

Corrective Actions

Following discovery of the condition, the Operations group issued instructions to enter the action of TS 3.8.1.1 for an inoperable offsite AC source during operation with the EDG breaker closed. The planned corrective action will revise the TS Bases change process to clearly specify the attributes of the inter-discipline review of proposed Bases changes, including a technical review of the change. This technical review should include consideration of off-normal plant configurations (such as surveillance, testing and transients) when assessing the impact of the proposed change.

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

Seabrook Station has not experienced any similar events in which the operating configuration of plant equipment resulted in unrecognized inoperability of TS equipment.