NEXTera ENERGY
DUANE ARNOLD

December 20, 2013

NG-13-0457
10 CFR 50.73

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

Duane Arnold Energy Center
Docket 50-331
Renewed Op. License No. DPR-49

Licensee Event Report #2013-002-001

Please find attached the subject report submitted in accordance with 10 CFR 50.73. This letter makes no new commitments or changes to any existing commitments.

Richard L. Anderson
Vice President, Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC

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 Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Duane Arnold Energy Center	05000331	1 OF 3

4. TITLE

Condition Prohibited by Technical Specifications - Reactor Core Isolation Cooling System

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
									N/A	05000
08	22	13	2013	002	1	12	20	13	FACILITY NAME N/A	DOCKET NUMBER 05000

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)	☐ 20.2203(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)	VOLUNTARY LER

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (*Include Area Code*)
Robert J. Murrell, Engineering Analyst	(319) 851-7900

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	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (*If yes, complete 15. EXPECTED SUBMISSION DATE*) ☒ NO				

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

On August 22, 2013 at 1340, while operating at 100% power, during the performance of Surveillance Test Procedure (STP) 3.5.3-02, RCIC System Operability Test, the Reactor Core Isolation Cooling (RCIC) turbine tripped on electronic over-speed immediately upon startup. Subsequent troubleshooting found the RCIC governor controls dropping resistor in the power supply circuit to be partially open. This resulted in less than adequate power supply to the RCIC electronic governor which allowed the RCIC turbine to over-speed and trip on electronic over-speed. The RCIC governor controls dropping resistor was replaced and RCIC was returned to service on August 24, 2013 at 0515. A past operability evaluation determined that the RCIC system was inoperable from June 21, 2013 to August 23, 2013, which is in excess of Technical Specification (TS) 3.5.3 Limiting Condition for Operation Completion Time. Therefore, this event resulted in a Condition Prohibited by TS and is reportable pursuant of 10 CFR 50.73(a)(2)(i)(B). The Root Causes of this event were a failed dropping resistor and an inadequate Operability screening of a Condition Report. The safety significance for this event was very low based on fact that RCIC could have been operated in manual as directed by existing procedures.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Duane Arnold Energy Center	05000 - 331	2013	002	1	2 OF 3

NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

I. Description of Event:

On June 6, 2013, Reactor Core Isolation Cooling (RCIC) TS Surveillance STP 3.5.3-02 was successfully performed. On June 21, 2013, Operations observed the RCIC speed indicator, SI2457, to be at approximately 1200 RPM while RCIC was in the standby condition. A Condition Report (CR) was initiated and screened as not affecting the operability of RCIC. The CR stated there was no safety significance; the instrument was for indication only. A degraded instrument sticker was placed on the tachometer and a Work Request was initiated to calibrate the tachometer. On the morning of August 22, 2013, the Work Order attempted to calibrate SI2457. The calibration was unsuccessful and the workers backed out of the calibration.

At 1340 on August 22, 2013, while operating at 100% power, during the performance of Surveillance Test Procedure (STP) 3.5.3-02, RCIC System Operability Test, the RCIC turbine tripped on electronic over-speed immediately upon startup. Subsequent troubleshooting found the RCIC governor controls dropping resistor in the power supply circuit to be partially open. This resulted in a lower than required power supply to the RCIC electronic governor which allowed the RCIC turbine to over-speed and trip on electronic over-speed.

At the start of this event, there were no other structures, systems or components inoperable that contributed to the event.

II. Assessment of Safety Consequences:

RCIC was inoperable from June 21, 2013 to August 23, 2013. Technical Specification Section 3.5.3, RCIC System, Action Statement A.2 for RCIC System inoperable, requires restoration of RCIC System to operable status in 14 days, or be in Mode 3 in the following 12 hours was exceeded. Therefore, this condition resulted in a Condition Prohibited by TS and is reportable to the NRC pursuant to 10 CFR 50.73(a)(2)(i)(B).

The safety significance for this event was very low based on fact that RCIC could have been operated in manual as directed by existing procedures.

This event did not result in a safety system functional failure.

III. Cause of Event:

The Root Causes of this event were determined to be the following:

1. The RCIC dropping resistor failed due to unknown material design changes of the resistor by the manufacturer that reduced performance margins in the given application. This resulted in over-heating and ultimate failure.
2. Screenings of the Condition Report written on the RCIC speed indicator failed to correctly assess RCIC operability due to process gaps.

IV. Corrective Actions:

The RCIC governor controls dropping resistor was replaced and RCIC was returned to service on August 24, 2013 at 0515.

The following corrective actions will be taken to preclude recurrence of this event:

1. Modifications will be made to the RCIC power supply to provide margin to thermal aging and to provide monitoring of output to detect any failures.
2. Guidance will be incorporated into site processes for how to conduct an independent review of the Shift Managers immediate operability determination on a risk significant Structure, System, or Component.

V. Additional Information:

Previous Similar Occurrences:

A review of License Event Reports from the past 5 years did not identify any similar occurrence.

EIIS System and Component Codes:

BN – Reactor Core Isolation Cooling System.

Reporting Requirements:

This event is being reported as an Operation or Condition Prohibited by TS, 10CFR50.73(a)(2)(i)(B).