



January 7, 2011

NG-11-0007
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
License No. DPR-49

Licensee Event Report #2010-005-00

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.

A handwritten signature in black ink that reads "Christopher R. Costanzo". The signature is written in a cursive, flowing style.

Christopher R. Costanzo
Vice President, Duane Arnold Energy Center
NextEra Energy Duane Arnold, LLC

LICENSEE EVENT REPORT (LER)

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

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, NEOF-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 Duane Arnold Energy Center	2. DOCKET NUMBER 05000331	3. PAGE 1 OF 4
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4. TITLE
Momentary Loss Of Shutdown Cooling During Refueling Outage

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	DOCUMENT NUMBER
11	10	10	2010	005	0	01	07	11	N/A	05000
									FACILITY NAME	DOCUMENT NUMBER
									N/A	05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
10. POWER LEVEL 0%	<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 checked="" 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 type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> VOLUNTARY LER

12. LICENSEE CONTACT FOR THIS LER

NAME Robert J. Murrell, Engineering Analyst	TELEPHONE NUMBER (Include Area Code) (319) 851-7900
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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 <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On November 10, 2010, at approximately 0518 hours, with the plant shutdown and in Mode 5 during Refueling Outage (RFO) 22, the 'A' Residual Heat Removal (RHR) pump tripped while operating in the shutdown cooling mode resulting in an interruption of the primary means of decay heat removal for approximately 30 minutes. During this period, the maximum increase in reactor temperature was approximately 2 degrees Fahrenheit with a calculated time to boil of approximately 33.9 hours. There was no loss of decay heat removal capability due to the fact that both trains of Fuel Pool Cooling and the Reactor Water Cleanup systems remained in service.

The cause of this event was due to an inadequate procedure revision process that introduced a latent procedure deficiency associated with isolating motive power to the RHR Shutdown Cooling isolation valves when removing the Reactor Protections System (RPS) from service.

This event is being reported as an event or condition that at the time of discovery could have prevented fulfillment of a safety function of structures or systems that are needed to remove residual heat under 10 CFR 50.73 (a)(2)(v)(B).

There were no actual safety consequences and no effect on public health and safety as a result of this event.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME Duane Arnold Energy Center	2. DOCKET 05000 - 331	6. LER NUMBER			3. PAGE 2 OF 4
		YEAR 2010	SEQUENTIAL NUMBER 005	REV NO. 0	

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

I. Description of Event:

On November 10, 2010, at approximately 0518 hours, with the plant shutdown and in Mode 5 during Refueling Outage (RFO) 22, the 'A' Residual Heat Removal (RHR) pump tripped while operating in the shutdown cooling mode resulting in an interruption of the primary means of decay heat removal for approximately 30 minutes. During this period, the maximum increase in reactor temperature was approximately 2 degrees Fahrenheit with a calculated time to boil of approximately 33.9 hours. There was no loss of decay heat removal due to the fact that both trains of Fuel Pool Cooling and the Reactor Water Cleanup systems remained in service.

At the time of this event, the plant was in the process of restoring motive power to MO-1909, Outboard Shutdown Cooling Isolation Valve. Motive power had previously been isolated to the valve as part of a preplanned evolution to transfer the power supply to 'B' Reactor Protection System (RPS). Due to a failure to isolate the control power to MO-1909 when RPS power had been transferred, MO-1909 automatically closed when motive power was restored due the existence of a Primary Containment Isolation System (PCIS) signal that was initiated when 'B' RPS power had been transferred. The closure of MO-1909 resulted in the isolation of the common shutdown cooling pathway, and therefore prevented both the 'A' and the 'B' RHR systems from removing decay heat.

As a result of the closure of MO-1909, Operations entered Abnormal Operating Procedure (AOP) 149, Loss of Decay Heat Removal, and Technical Specification (TS) Limiting Condition for Operations (LCO) 3.9.7 Condition A; Required RHR Shutdown Cooling Subsystem Inoperable and performed the required actions of the AOP and TS. At approximately 0547, shutdown cooling was restored when the 'C' RHR pump was placed in shutdown cooling. TS 3.9.7 and AOP 149 were subsequently exited at 0551.

This event was reported to the NRC as an 8 hour event under 10 CFR 50.72 (b)(3)(v)(B), event or condition that at the time of discovery could have prevented fulfillment of a safety function of structures or systems that are needed to remove residual heat, as documented in Event Notification number 46410.

II. Assessment of Safety Consequences:

For the duration of this event, adequate decay heat removal existed as part of the site's Shutdown Risk Management in that two loops of Fuel Pool Cooling (FPC) were in-service and Feed and Bleed utilizing the Control Rod Drive (CRD) pumps was available. Additionally, Reactor Water Cleanup (RWCU) was in service and remained in service for the duration of this event. Note that RHR shutdown cooling was considered available for the duration of this event due to the fact that there were no component failures associated with MO-1909 preventing it from being immediately re-opened. Therefore, there were no actual safety consequences and no effect on public health and safety as a result of this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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		YEAR 2010	SEQUENTIAL NUMBER 005	REV NO. 0	

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

This event is being reported as an event or condition that at the time of discovery could have prevented fulfillment of a safety function of structures or systems that are needed to remove residual heat under 10 CFR 50.73 (a)(2)(v)(B).

This event did result in a Safety System Functional Failure.

III. Cause of Event:

An apparent cause evaluation was completed for this event. The evaluation determined that the procedure used to control the power transfer evolution, Operating Instruction, OI 358, Reactor Protection System, Appendix 3, had been corrupted during a previous revision. This occurred during a re-formatting revision that occurred in July of 2007, in which critical text was inadvertently deleted from Appendix 3 of the OI. The deleted text would have directed the de-energizing of control power to the breaker for MO-1909, RHR Shutdown Cooling Outboard Suction Isolation Valve. By failing to de-energize the control power to the breaker, the isolation logic remained active and 'sealed-in.' Following the restoration of valve motive power, the valve automatically closed due to the 'seal-in' condition. The July 2007 OI revision re-formatted the section for isolating control power to the breaker. This revision contained hidden formatting enhancements that omitted the critical steps to isolate control power to the breaker. The apparent cause was determined to be from an inadequate process to ensure re-formatting of procedures does not introduce deficiencies.

IV. Corrective Actions:

Corrective Actions Taken to Address Apparent Cause:

OI 358 was revised on November 11, 2010 to restore the missing text to isolate the control power to the SDC isolation valve breakers.

Corrective Actions Needed to Address Extent of Condition:

Develop new criteria and/or process tool(s) as new barrier(s), to quantify both the extent and significance of formatting changes.

V. Additional Information:

Previous Similar Occurrences:

A review of LERs from the past 5 years did not identify any previous similar occurrences.

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CONTINUATION SHEET

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

EIIS System and Component Codes:

BO - Residual Heat Removal/Low Pressure Coolant Injection System (BWR)

Reporting Requirements:

This report is being submitted under 10 CFR 50.73(a)(2)(v)(B).