



March 11, 2010

NG-10-0155
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 #2010-002-00

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, reading "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

cc: Administrator, Region III, USNRC
Project Manager, DAEC, USNRC
Resident Inspector, DAEC, USNRC

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, 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

Duane Arnold Energy Center

2. DOCKET NUMBER

05000 331

3. PAGE

1 OF 4

4. TITLE

Condition Prohibited by Technical Specifications

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
01	04	10	2010	002	0	03	11	10	FACILITY NAME	DOCUMENT NUMBER
										05000
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<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)
10. POWER LEVEL	<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)	<input type="checkbox"/> VOLUNTARY LER

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Bob 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

☐ 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 January 4, 2010, a condition prohibited by Technical Specifications (TS) existed. Specifically, a TS violation occurred when it was not recognized that TS Limiting Condition for Operation (LCO) 3.3.1.1, Reactor Protection System (RPS) and 3.3.4.1, End Of Cycle - Recirculation Pump Trip (EOC-RPT) were not met when the Turbine Bypass Valves (TBVs) were in the open position (TS LCO 3.7.7). The LCO conditions existed for approximately 6.5 hours. LCO 3.3.1.1 requires RPS trip capability to be restored within 1 hour and LCO 3.3.4.1 requires a Minimum Critical Power Ratio (MCPR) penalty be inserted within 2 hours. If these actions are not completed, then both TS 3.3.1.1 and 3.3.4.1 require the plant to be less than 26% Rated Thermal Power (RTP) within 4 hours thereafter. Because reactor power was not reduced to less than 26% RTP within the 5 hours (total) required by LCO 3.3.1.1, a condition prohibited by TS existed for approximately 1.5 hours. A condition prohibited by TS 3.3.4.1 also existed for approximately 0.5 hours. The date of discovery for this event is January 11, 2010.

The cause of this event was determined to be that the plant staff did not have a full/complete understanding of the relationship between TBVs being open and the direct impact on the Turbine First Stage Pressure (TSFP) trip/enable setpoint in determining TS compliance/Operability.

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	SEQUENTIAL NUMBER	REV NO.	
		2010	002	0	

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

I. Description of Event:

On January 4, 2010, at 0324, with the unit operating at 100% power, both Turbine Bypass Valves (TBV1 and TBV2) unexpectedly repositioned from the expected closed position to open causing reactor power to spike to 105%. At 0326 Abnormal Operating Procedure (AOP) 255.2, Power/Reactivity Abnormal Change was entered. In addition, this condition resulted in entry into unplanned LCO 3.7.7 Condition A for both TBVs being inoperable at 0328. At 0329, a fast power reduction was commenced in accordance with Integrated Plant Operating Instruction (IPOI) 4, Shutdown. Power reductions were secured at 0410 when power was reduced to 68%. At 0448, both TBVs returned to their closed positions. In order to comply with LCO 3.7.7, Condition A, a Minimum Critical Power Ration (MCPR) penalty was applied at 0520 and LCO 3.7.7 was subsequently exited. Subsequently, the TBVs again unexpectedly repositioned to full open at 0545 and closed at 0656. At 0700, both TBVs again unexpectedly repositioned to full open. The TBVs remained full open until they both closed at 1334. On January 5, 2010, at 0022, the TBVs were jumpered closed per Corrective Work Order A101823. The TBVs were declared operable on January 5, 2010 at 1354 when a failed circuit card was replaced.

On January 11, 2010, it was discovered that on January 4, 2010, a condition prohibited by Technical Specifications (TS) existed. Specifically, a TS violation occurred when it was not recognized that TS LCO 3.3.1.1, Reactor Protection System (RPS) and 3.3.4.1, End Of Cycle - Recirculation Pump Trip (EOC-RPT) were not met when the Turbine Bypass Valves (TBVs) were in the open position (TS LCO 3.7.7). The LCO conditions existed for approximately 6.5 hours – from 0700 until 1334. LCO 3.3.1.1 requires RPS trip capability to be restored within 1 hour and LCO 3.3.4.1 requires an MCPR penalty to be inserted within 2 hours. If these actions are not completed, then the plant is required to be less than 26% Rated Thermal Power (RTP) within 4 hours thereafter. Because reactor power was not reduced to less than 26% RTP within the 5 hours (total) required by LCO 3.3.1.1, a condition prohibited by TS existed for approximately 1.5 hours, until the TBVs both closed at 1334. Additionally, because reactor power was not reduced to less than 26% RTP within the 6 hours (total) required by LCO 3.3.4.1, a condition prohibited by TS existed for approximately 0.5 hours, until the TBVs both closed at 1334.

II. Assessment of Safety Consequences:

The TBVs, if open or inoperable at power levels between 26% and 39% power, may cause the Turbine Control Valve (TCV) and Turbine Stop Valve (TSV) Scrams and Recirculation Pump Trip (RPT) trips to be improperly bypassed due to the diversion of steam flow away from the Turbine First Stage Pressure (TFSP) switch which automatically bypasses these trips when reactor power is less than 26%. During the period of time that the condition prohibited by TS existed, reactor power was never less than 39%. Therefore, there was no actual impact on safety. In addition, there were no structures, systems, or components (SSCs) that failed during this event.

This event did not result in a Safety System Functional Failure.

Therefore, this event did not result in any radiological or nuclear concern which would impact the health and safety of the public.

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

1. FACILITY NAME Duane Arnold Energy Center	2. DOCKET 05000 - 331	6. LER NUMBER			3. PAGE 3 OF 4
		YEAR 2010	SEQUENTIAL NUMBER 002	REV NO. 0	

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

III. Cause of Event:

An Apparent Cause Evaluation (ACE 2026) was completed for this event. The ACE determined that the Plant staff did not have a full/complete understanding of the relationship between TBVs being open and the direct impact on the TFSP trip/enable setpoint in determining TS compliance/Operability. The contributing factors were as follows:

1. TS Bases has incorrect information and was not well human factored.
2. The Surveillance Test Procedure for TBVs, STP 3.7.7-01, contains misleading information on maintaining TS Operability.
3. Training of Operators was ineffective in understanding this relationship, coupled with the wording of SR 3.3.1.1.16 and 3.3.4.1.5 being stated in % RTP, not TFSP (psig).

IV. Corrective Actions:

Corrective Actions to Address Condition

LAR054181 has been initiated to track the identified Bases changes. The focus of this action is on correcting the error in RPS and providing better cross-references between TBVs and RPS/EOC-RPT.

PCR054182 has been initiated to track changes to STP 3.7.7-01. This action will add a Note above the steps that make RPS/EOC-RPT trips inoperable and to add logging information.

OTH045281 has been written to add this event to the classroom exercise guide for the Operations Initial License Training (ILT) program.

OE045134 has been written to share this event with external peers.

RFT054367 has been written to include this event in the License Operator Re-qualification (LOR) training program.

V. Additional Information:

Previous Similar Occurrences:

A review of LERs over the previous 5 years revealed the following similar occurrence:

LER 2007-008 - Condition Prohibited by Technical Specifications; 'B' Emergency Diesel Inoperable

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME Duane Arnold Energy Center	2. DOCKET 05000 - 331	6. LER NUMBER			3. PAGE 4 OF 4
		YEAR 2010	SEQUENTIAL NUMBER 002	REV NO. 0	

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

ELIS System and Component Codes:

TG - Main Turbine Control Fluid System
IT - Main Turbine Instrumentation System
TA - Main Turbine System

Reporting Requirements:

This event is reportable under 10CFR50.73(a)(2)(i)(B), 'Operation or Condition Prohibited by Technical Specification.'