

April 8, 2003
NG-03-0265

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station 0-P1-17
Washington, D.C. 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Licensee Event Report #2003-002-00
File: A-120

Dear Sirs:

Please find attached the subject Licensee Event Report (LER) submitted in accordance with 10CFR50.73. There are no new commitments contained within this report. Should you have any questions regarding this report, please contact this office.

Sincerely,



Mark Peifer,
Site Vice President

cc: Mr. James Dyer
Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532

NRC Resident Inspector – DAEC
IRMS

JE22

NRC FORM 366 (7-2001)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 <small>Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.</small>	EXPIRES 7-31-2004
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 0; font-size: small;">(See reverse for required number of digits/characters for each block)</p>			

1. FACILITY NAME Duane Arnold Energy Center	2. DOCKET NUMBER 05000331	3. PAGE 1 OF 4
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4. TITLE Inadequate Procedure Leads to Failure to Remove Key from Mode Switch when Locked in Refuel Position During Control Rod Movement as Required by Technical Specifications

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	11	2003	2003	002	00	04	08	2003	FACILITY NAME	DOCKET NUMBER
										05000
										05000

9. OPERATING MODE	4	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
10. POWER LEVEL	000	20 2201(b)	20 2203(a)(3)(ii)	50 73(a)(2)(ii)(B)	50.73(a)(2)(b)(A)				
		20.2201(d)	20 2203(a)(4)	50 73(a)(2)(iii)	50.73(a)(2)(x)				
		20.2203(a)(1)	50 36(c)(1)(i)(A)	50 73(a)(2)(iv)(A)	73.71(a)(4)				
		20.2203(a)(2)(i)	50 36(c)(1)(ii)(A)	50 73(a)(2)(v)(A)	73.71(a)(5)				
		20.2203(a)(2)(ii)	50 36(c)(2)	50 73(a)(2)(v)(B)	OTHER				
		20 2203(a)(2)(iii)	50.46(a)(3)(ii)	50 73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A				
		20 2203(a)(2)(iv)	50 73(a)(2)(i)(A)	50 73(a)(2)(v)(D)					
		20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50 73(a)(2)(i)(B)	50 73(a)(2)(vii)					
20 2203(a)(2)(vi)	50 73(a)(2)(i)(C)	50 73(a)(2)(viii)(A)							
20 2203(a)(3)(i)	50 73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)							

12. LICENSEE CONTACT FOR THIS LER

NAME Tony Browning, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (319) 851-7750
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (if yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/>	NO		MONTH	DAY	YEAR

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

On February 11, 2003 at 0945 hours, with the plant in Cold Shutdown (MODE 4), Control Rod Drive (CRD) exercises commenced utilizing Special Operations Technical Specification (TS) 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown." TS 3.10.4 invokes TS 3.9.2, "Refuel Position One-Rod-Out Interlock" as a sub-tiered requirement. Surveillance Requirement (SR) 3.9.2.1 requires that the Reactor Mode Switch be locked in the Refuel position. The TS Bases for SR 3.9.2.1 defines "locking" as removing the key from the switch. When the key was discovered in the switch at 2041 hours, 23 CRDs had been exercised. While the Reactor Mode Switch remained locked in the Refuel position during the CRD exercises, the key was not removed as required by SR 3.9.2.1. This is considered to be a TS violation, as control rod withdrawal took place with TS 3.9.2 and 3.10.4 not met. The cause of the event was inadequate procedures that did not include a step to remove the key from the switch; coupled with unfamiliarity by the on-shift Operations crew of the Bases requirement to remove the key. Corrective Actions are to add steps to the appropriate plant procedures to remove the key as part of "locking" the Mode Switch. Also, an Operations Department "Hot Item" was prepared to make licensed Operations personnel aware of the incident. There was no safety significance to this event, as the Mode Switch remained in the Refuel position when Control Rods were exercised.

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

I. Description of Event:

On February 11, 2003, with the plant in MODE 4 (Cold Shutdown), the on-shift Operating crew was preparing to flush the Control Rod Drive (CRD) System as part of the plant recovery efforts from a reactor coolant chemistry excursion event on January 31, 2003 (LER 05000331/2003-001-00). The CRD flushing process involved individually cycling each Control Rod from the fully inserted to fully withdrawn and back to the fully inserted position three times. All 89 CRDs were planned to be cycled. The CRD movement was being controlled by Surveillance Test Procedure (STP) 3.10.4-01, "Single Control Rod Withdrawal (Cold Shutdown) and STP NS550004, "CRD Friction Testing."

No structures, systems, or components were inoperable at this time that contributed to this event.

At 0906 hours, Special Operations Technical Specification (TS) 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown" was entered to begin the CRD cycling. TS 3.10.4 invokes TS 3.9.2, "Refuel Position One-Rod-Out Interlock" as a sub-tiered requirement (b.1) in the Limiting Condition for Operation (LCO). Surveillance Requirement (SR) 3.10.4.1 requires that the SRs for TS 3.9.2 (among others) be met. SR 3.9.2.1 requires a verification every 12 hours that the Reactor Mode Switch be locked in the Refuel position. The TS Bases for SR 3.9.2.1 defines "locking" to include removing the key from the Mode Switch.

At 0924 hours, the Mode Switch was placed in the Refuel position and Control Rod cycling commenced at 0945 hours and continued until 1726 hours. During this interval, 23 Control Rods were cycled.

At 1834 hours, a scheduled Control Room shift change was made. In the process of preparing to resume CRD flushing (approx. 2041 hours), the new Control Room crew noted that while the Mode Switch was in the Refuel position, with the key turned to the locked position; the key was still in the Mode Switch. The crew recognized that this was not in conformance with the TS Bases for SR 3.9.2.1 and that the previous crew had potentially violated TS during the earlier CRD cycling. A corrective action report was written (Action Request CAP025551) to document the issue. Subsequent evaluation (Action Request CE000307) determined that the failure to remove the key during the CRD cycling was in violation of SR 3.9.2.1, and, in turn TS 3.10.4.

Control Rod cycling was re-commenced at 0021 hours on February 12, with the key properly removed from the Mode Switch, and subsequently completed without further incidents.

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

II. Cause of Event:

An Apparent Cause evaluation was performed under Action Request (ACE001061), which concluded that the event was caused by a combination of factors.

The primary cause was inadequate procedures, which did not specifically direct removal of the key from the Mode Switch as part of the process of locking the switch in the Refuel position; specifically STP 3.10.4-01, which was being used to control this evolution, contains the step to "LOCK the MODE SWITCH in the REFUEL position." However, no additional information regarding removal of the key was included.

A secondary cause was a lack of familiarity with the TS Bases for SR 3.9.2.1, which contains the requirement to remove the key, by the initial Control Room crew. The relieving crew was aware of the requirement and recognized the potential problem when the key was discovered in the Mode Switch.

III. Assessment of Safety Consequences:

There was no safety significance to this event, as the Mode Switch remained locked in the Refuel position during all Control Rod movements. This event was a failure to properly execute an administrative control to remove the key from the switch as discussed in the Bases to SR 3.9.2.1.

IV. Corrective Actions:

As part of closure of Action Request (PCR026758), an electronic search of the plant procedures was conducted to identify instances of the requirement to lock the Mode Switch in the Refuel position. Procedure Work Requests (PWR) were initiated to revise the identified procedures to add a specific requirement to remove the key from the Mode Switch.

All identified procedure changes have been completed (STP 3.0.0-03/PWR 20750; STP 3.9.1-01/PWR 20751; STP 3.10.4-01/PWR 20752; STP 3.10.3-03/PWR 20799; OI 856.1/PWR 20800; STP 3.10.3-02/PWR 20801).

An Operations Department "Hot Item" was written to inform the Operations staff of this incident. Hot Items are read by the Control Room crew as part of assuming their shift.

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

V. Additional Information:

Previous Similar Occurrences:

Since implementation of the conversion to Improved Standard TS in 1998, which involved an extensive review of all STPs, no other incidents of inadequate surveillance test procedures leading to non-compliance with TS requirements were found. In 1999, there was an incident (Ref. LER 05000331/99-002) in which it was determined that the TS SR was incorrectly written, leading to a performance problem with the as-written STP. A Notice of Enforcement Discretion was granted by the NRC and the SR was corrected by an exigent TS amendment. The corrective actions taken as a result of that event would not have precluded this current problem.

EIIS System and Component Codes:

Control Rod Drive: AA
Reactor Mode Switch: JC/JD