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Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

Operated by Nuclear Management Company LLC

August 17, 2000
NG-00-1425

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 #2000-003
File: A-120

Dear Sirs:

Please find attached the subject Licensee Event Report submitted in accordance with 10CFR50.73. No new commitments are made by this letter.

Should you have any questions regarding this report, please contact this office.

Sincerely,

Richard L. Anderson
Plant Manager - Nuclear

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

NRC Resident Inspector - DAEC
DOCU

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2NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

Actuation of Engineered Safety Feature, Primary Containment Isolation, From a Planned Fuse Removal

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
07	18	2000	2000	-- 003 --	00	08	17	2000	FACILITY NAME	DOCKET NUMBER
										05000

OPERATING	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)(C)		Specify in Abstract below or in RC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Wendell Aldrich, Principal Licensing Specialist	(319) 851-7305

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

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

On 7/18/2000 at approximately 1212, during preplanned maintenance activities on the 'B' standby gas treatment system (SBGTS) logic, an unexpected, invalid ESF actuation occurred. The plant was at 100% power operation, 1658 MWth, and Limiting Conditions for Operation (LCO) were in place for 'B' SBGTS and CARDOX. Specifically, a planned fuse removal resulted in an unexpected isolation of a containment nitrogen makeup valve, CV4311, and the 'B' recirculation mini-purge valve, CV1804B, in response to a Primary Containment Isolation System (PCIS) actuation. All isolations performed as designed. The Group III isolation was reset at 1541 on 7/18/2000 and the isolated valves were subsequently re-opened.

The cause of this event was inadequate planning of the work activity. Corrective actions will include a review of the planning process for work orders that involve plant manipulations.

This event had no effect on the safe operation of the plant.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

I. DESCRIPTION OF EVENT:

A scheduled ten-year PWO 1111870, to replace a normally energized timing relay (62-K0003B) in the logic of the 'B' SBGTS was planned by a Project Engineering planner. Based on successful completion of similar work on the 'A' train in January of 1999, the planner and verifying engineer believed that a Group III-B isolation would be fully inserted for the duration of the work. During engineering verification of the maintenance planning, effects of de-energizing the ventilation shaft monitor relay (95-K134B) were discussed, but dismissed and not listed on the Fuse Removal Request as required by the Administrative Control Procedure (ACP) 1410.5. Additionally, ACP 1410.5 specifies that the Fuse Removal Request be reviewed by System Engineering to verify or complete plant effects associated with the fuse removal. The reviewing system engineer was not aware of the ACP requirement to list all the affected components.

Based upon a desire to have mini-purge operating during the maintenance activity, a Work Control Center (WCC) Supervisor made the decision to modify the Group III-B isolation portion of the work by adding steps in the PWO to reset the PCIS signal and restore 'B' recirculation mini-purge. This decision appears to have been unnecessary based upon the fact that previously performed work on train 'A' was performed with a Group III isolation fully inserted, and no adverse effects were noted as a result of leaving mini-purge isolated (WO 1102815).

As a result of this desire to have mini-purge available, the WCC Supervisor spent many hours to understand the plant effects of the changes made to the PWO plan. The scheme, involving a lockout relay, was complex and the Operating Instructions did not give guidance for resetting one train of PCIS. The success of the planning depended on understanding and knowledge of the plant systems and drawings. Although the drawings were adequately clear to show the electrical relationship between the relay and the fuses, the WCC Supervisor and WCC planner, who worked with the WCC Supervisor, did not recognize that the ventilation shaft monitor relay would lose power with fuse removal.

During the planning of the reset for mini-purge, the WCC Supervisor attempted to contact the engineering planner to discuss the revised plan. However at the time, the engineering planner was off-site on a business trip and the WCC Supervisor subsequently left a phone message. Upon his return to the site, the engineer contacted the WCC and was informed by the WCC planner that the planning issue had been resolved and that they no longer needed to discuss the plan with him.

Verification is not required for changes made to PWO planning by operations (WCC). Changes they make are normally for prerequisites, insertion of Operating Instructions steps, and post-maintenance testing. If the changes made to the PWO had been made to a Fuse Removal Request, then verification would have been procedurally required. The changes made to the PWO plan changed it from a previously successful plan (reference 'A' train work completed in January 1999) to a complex untested plan that involved many hours of planning. The WCC Supervisor, a licensed (SRO) operator, who reviewed the PWO plan, asked a WCC planner, also a licensed (SRO) operator, to help in evaluating the plan. However, the WCC planner did not sign off as a verifier and admitted that if a signoff were required, the review might have been more thorough.

On 7/18/2000, at approximately 1212, during performance of the PWO an unexpected and invalid ESF actuation occurred. The plant was at 100% power operation, 1658 MWth, and Limiting Conditions for Operation (LCO) were in place for 'B' SBGTS and CARDOX. Specifically, after PCIS was reset in order to restore mini-purge, the workers pulled fuses as planned to isolate the SBGT timing relay. When this occurred, the ventilation shaft monitor relay de-energized and initiated the PCIS isolation which caused the containment nitrogen makeup valve, CV4311, and the 'B' recirculation mini-purge valve, CV1804B, to isolate.

II. CAUSE OF EVENT

The cause of this event was inadequate planning of the work activity. Several human performance factors contributed to the breakdown of barriers for successful completion of this work. Specifically, engineering did not completely list the effects on the plant from pulling the fuses, operations personnel unnecessarily complicated the work by changing the plan to restore to service some of the valves that would close as part of the group III isolation, and operations did not formally verify their WO plan changes and consequently, they were unaware that the revised plan would inadvertently de-energize the vent shaft monitor relay that would then re-initiate the PCIS isolation.

III. ANALYSIS OF EVENT

This event had no effect on safe operation of the plant, nor would it have had an effect on safe operation during any other plant conditions. Though two PCIS valves changed state, it was in the direction of a Group III isolation which is conservative with respect to nuclear safety.

IV. CORRECTIVE ACTIONS

Four programmatic enhancement Action Requests (ARs) have been written for plant management to take action concerning these deficiencies:

1. AR21450 has been written to Engineering to take appropriate action to ensure conformance to ACP requirements.

2. AR21451 has been written to Operations to discuss breakdown in interdepartmental communications.

3. AR21452 has been written to Operations to develop guidelines for verification that corresponds to the existing Administrative Control Procedures for Engineering verifications.

4. AR21543 has been written to Engineering to provide guidance on mini-purge out of service restrictions.

V. ADDITIONAL INFORMATION

A. Previous Similar Events

LERs 98-02, 98-03, 96-02, 96-03, 96-05, 95-04, 93-12, 93-06, 93-03, 92-05, 91-06, 90-08, and 90-11 were reviewed for applicability due to their discussion of unplanned ESF actuations. LER93-06 was a similar event of a PCIS actuation from inadequate planning and lack of communication between Engineering and Operations. . That one time review of that event did not preclude this similar occurrence on work performed seven years later, but is not deemed to be a significant trend.

B. EIIS System and Component Codes

Systems: BH- Emergency Standby Gas Treatment System
JM- Primary Containment Isolation System

This report is being submitted pursuant to 10CFR50.73(a)(2)(iv)