

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Duane Arnold Energy Center										DOCKET NUMBER (2) 0 5 0 0 0 3 3 1										PAGE (3) 1 OF 0 3																													
TITLE (4) Spent Fuel Pool Level Found Below Technical Specification Limit																																																	
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 NAMES None										DOCKET NUMBER(S) 0 5 0 0 0									
0 6			1 4			8 5				8 5			0 2 1			0 0 0 7 1 2 8 5														0 5 0 0 0																			
OPERATING MODE (9) N										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																							
POWER LEVEL (10) 0 0 0										20.402(b)										20.406(e)										50.73(a)(2)(iv)										73.71(b)									
										20.406(a)(1)(i)										50.38(a)(1)										50.73(a)(2)(vi)										73.71(a)									
										20.406(a)(1)(ii)										50.38(a)(2)										50.73(a)(2)(vii)										OTHER (Specify in Abstract below and in Text, NRC Form 306A)									
										20.406(a)(1)(iii)										50.73(a)(2)(i)										50.73(a)(2)(viii)(A)																			
										20.406(a)(1)(iv)										50.73(a)(2)(ii)										50.73(a)(2)(viii)(B)																			
										20.406(a)(1)(v)										50.73(a)(2)(iii)										50.73(a)(2)(ix)																			
LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME James C. Smith, Acting Technical Support Supervisor																				TELEPHONE NUMBER 3 1 9 8 5 1 - 7 2 3 8																													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																	
CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC			CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC																						
SUPPLEMENTAL REPORT EXPECTED (14)																				EXPECTED SUBMISSION DATE (15)										MONTH DAY YEAR																			
YES (If yes, complete EXPECTED SUBMISSION DATE)																				X NO																													
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																																																	
<p>While the reactor was in refuel mode during a refuel outage on 6/14/85, it was discovered that the spent fuel pool was 5 inches below the specified Technical Specification level of 36 feet. (Normal level is approximately 37 feet.) The fuel pool-to-reactor cavity gates were in place and pools were flooded. The fuel pool cooling system was aligned for reactor cavity cooling. The gate was not installed to the fuel cask storage pool. A small leak-through of the cask pool drain valve had caused a slow lowering of the level in the fuel pool. Several times during the day operators had provided makeup water to the fuel pool from the Condensate Service system. The gradual leakage was somewhat increased when leakage in the fuel pool cooling system recirculation valve set up a siphon path from the fuel pool return lines to the reactor cavity.</p> <p>There is no direct level indication provided for fuel pool level although a low level alarm sounds at a local panel which also activates a "common panel trouble" alarm in the Control Room. When the extent of the level drop was recognized, operators promptly provided makeup flow using Condensate Service hoses and by realigning fuel pool cooling to the spent fuel pool. A subsequent review of the event determined the precise relationship between the lowest level reached and the Technical Specification limit.</p> <p>Shielding and cooling of the spent fuel was not degraded during the period but this event is being reported pursuant to 10 CFR 50.73(a)(2)(i) as "any operation or condition prohibited by the plant's Technical Specifications."</p>																																																	

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Duane Arnold Energy Center	0500033185	0	2	1	0	0	02 of 03

TEXT (If more space is required, use additional NRC Form 366A (1/17))

While the reactor was in refuel mode during a refuel outage on 6/14/85, the fuel pool cooling system (EIS system DA) was aligned in an alternate mode to provide reactor cavity cleanup and cooling. This infrequently used mode was in operation to provide continued vessel water cleanup and clarity improvement. The fuel pool-to-reactor cavity gates were in place and the cavity was partially flooded. The gate was not installed to the fuel cask storage pool. A slow leak through the cask pool drain valve, in this alternate mode, had caused a slow drop in fuel pool level. Licensed personnel were observing level and had provided makeup water to the fuel pool from the Condensate Service system several times during the day.

At 1535 hours, it was discovered that the spent fuel pool level had decreased below the Technical Specification limit of 36 feet (normal level approximately 37 feet). A subsequent review of the event determined that the minimum level reached approximately 5 inches below the Technical Specification limit. The spent fuel pool was promptly refilled using Condensate Service hoses and by realigning the pool cleanup and cooling system to discharge to the spent fuel pool. The low level alarm cleared at 1649 hours. The Technical Specification level was recovered somewhat earlier.

There is no direct indication provided of fuel pool level nor is there any identification of the Technical Specification level. Therefore, gradual changes in fuel pool level are difficult to detect. The level drop rate was increased somewhat when a leaking valve in the pool cooling system (fuel pool recirculation valve) caused siphoning from the fuel pool return line to the reactor cavity. By the time operators could respond, the fuel pool level had dropped below the Technical Specification limit. The siphoning terminated when the water dropped below the return line inlet level (slightly above the Technical Specification limit).

Since there is no corresponding alarm or indication for the Technical Specification level limit, it cannot be determined how long the spent fuel pool level was below that limit. The low level alarm (with a corresponding "common panel trouble" alarm in the Control Room) had been alarming during the whole shift. The alarm was sounding as a normal result of the alternate pool cooling and cleanup system alignment because of no flow across the spent fuel pool weir in this mode. Because of poor communications between licensed personnel on the refuel floor and the Operations Shift Supervisor, the OSS was not aware of the problem, nor was he aware that refilling was necessary earlier in the shift. Distractions from other operations in the Control Room were also a contributing factor. The recognition that the spent fuel pool had dropped below the Technical Specification limit did not occur until the Operations shift turnover. Even though the valve leakages are not a concern when the spent fuel cooling system is in its normal alignment, Maintenance Action Requests have been initiated to repair the two valves which caused the gradual decrease of level. Operations personnel have established fuel pool landmarks which correspond to Technical Specification level. Additionally, an engineering review has been initiated to provide level indication and alternate alarm of the fuel pool level.

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Duane Arnold Energy Center	0 5 0 0 0 3 3 1	8 5	— 0 2 1	— 0 0	0 3	OF	0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

The following actions, in addition to those identified above, were initiated as a result of this event:

1. A management review of the event was performed. As a result of this review, written direction regarding operating philosophy and Operations Department administration was issued. This guidance was reinforced by meetings with each shift by plant management.
2. A contributing factor identified during the review was poor communication between a licensed operator and shift supervisory personnel. This is believed to be an isolated instance particular to the circumstances surrounding the refuel outage. Until completion of the outage one shift supervisor (SRO) is required to be in the front panel area of the Control Room at all times.
3. Again, directly related to the refueling outage activities, Control Room traffic and operating crew administrative duties need to be severely curtailed. Therefore, as an interim measure, a day and swing shift screening shift supervisor was established to filter construction and maintenance activities prior to such activities reaching the operating crew. Other mechanisms were instituted to limit Control Room access.
4. STA coverage, although not required by DAEC technical specifications, was provided on day and swing shifts, available on an "on demand" basis.
5. Significant plant evolutions, until completion of the outage, require written direction from the Operations supervisor's office and an additional level of management review as a prerequisite.
6. A contributing cause of the event was also the lack of direct indication of the technical specification limit. As such, a review of technical specifications will be performed to identify other similar parameters and engineering activities initiated to augment our instrumentation.

Shielding and cooling of the spent fuel was not degraded during the period but this event is being reported pursuant to 10 CFR 50.73(a)(2)(i) as "any operation or condition prohibited by the plant's Technical Specifications."

Iowa Electric Light and Power Company

July 12, 1985
DAEC-85-606

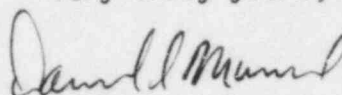
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Duane Arnold Energy Center
Docket No. 50-331
Op. License DPR-49
Licensee Event Report No. 85-021

Gentlemen:

In accordance with 10 CFR 50.73 please find attached a copy of the
subject Licensee Event Report.

Very truly yours,



Daniel L. Mineck
Plant Superintendent - Nuclear
Duane Arnold Energy Center

DLM/JCS/kp

attachment

cc: Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

NRC Resident Inspector - DAEC

File A-118a

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