

Iowa Electric Light and Power Company

October 17, 1991
DAEC-91-0824

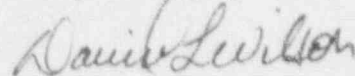
Mr. A. Bert Davis
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License DPR-49
Licensee Event Report #91-010

Gentlemen:

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

Very truly yours,



David L. Wilson
Plant Superintendent - Nuclear

DLW/HT/pwj

cc: Director of Nuclear Reactor Regulation
Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D. C. 20555

NRC Resident Inspector - DAEC

JE22 1/1

LICENSEE EVENT REPORT (LER)

EXPIRES 4-30-92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50 0 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530) U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET WASHINGTON, DC 20503

FACILITY NAME (1): Duane Arnold Energy Center DOCKET NUMBER (2): 0 5 0 0 0 3 3 1 1 OF 0 4 PAGE 3

TITLE (4): Monitoring Instrumentation not Installed to Meet Seismic Requirements

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	DOCKET NUMBER (5)
									None	0 5 0 0 0 0
0	9	17	9	1	0	1	0	1	7	9
										0 5 0 0 0 0

OPERATING MODE (9): N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. Check one or more of the following: (11)

POWER LEVEL (10): <u>1,0,0</u>	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(e)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.36(e)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Additional Detail and in Text, NRC Form 305A)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12):

NAME	TELEPHONE NUMBER
<u>Timothy W. Sims, Technical Support Specialist</u>	<u>3 1 9 8 5 1 - 7 1 1 0</u>

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

CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14): YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces - a approximately fifteen single space typewritten lines) (16)

On September 17, 1991, it was discovered that four Foxboro instrument nests located in the Control Room did not match their seismic test configuration. A nest is a mounting base with power connections that can house up to ten function modules. Function modules are solid-state electronic circuit cards that perform a specific function. These nests contain the instruments that monitor containment water level (wide range); torus water level, average torus water temperature; drywell pressure and air temperature; and reactor pressure (wide range). There are also instruments to control a Residual Heat Removal (RHR) interlock that disables containment spray permissive at a reactor low water level (2/3 core coverage). The nests were expeditiously brought to a qualified configuration on September eighteenth.

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

EXPIRES 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD. COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Duane Arnold Energy Center	DUCKET NUMBER (2) 05000331	LER NUMBER(B)			PAGE (3)	
		YEAR 91	SEQUENTIAL NUMBER - 010	REVISION NUMBER - 00	2	OF 4

TEXT (If more space is required, use additional NRC Form 308A's) (17)

I. DESCRIPTION OF EVENT:

On Tuesday, September 17, 1991, while at 100% reactor power, it was discovered that the configuration of four Foxboro nests in the control room were not configured in the same manner as tested by Foxboro. They were therefore seismically unqualified per IEEE 344-1975 and Foxboro test report Q0AAB58.

At that point, the non-conformance was documented and an Engineering evaluation took place to determine what was needed to bring the nests to a qualified status and an evaluation of operability was initiated. The nests were missing bumpers, guide rails and dummy loads in various locations where they were required. The bumpers are small rubber pads that stick to the back wall of the nest against which the card rests. The purpose of the bumpers is to dampen vibrations encountered during a seismic event. Guide rails are plastic rails attached to the nests between which the cards are installed. The purposes of the guide rails are to ease installation of the cards and to limit lateral movement of the cards during a seismic event. The dummy load cards are weighted module cards without electrical connections. They mimic the actual cards in both size and weight.

The needed parts were identified and ordered from the vendor. The vendor express shipped the parts.

II. CAUSE OF EVENT

The nests had been installed as design changes. Two of the nests were installed in 1981 and the other two in 1988. The cause for the omission of bumpers, guide rails and dummy load cards during the 1981 installation has been determined to be a combination of insufficient documentation of the seismically tested configuration, inadequate review of the qualification test report and inadequate vendor installation instructions. The Duane Arnold Energy Center (DAEC) modification procedures currently in place provide adequate generic guidelines relative to equipment qualification. However, this specific qualification test report did not clearly stipulate a required configuration. The need for bumper pads was mentioned in a single paragraph of the general qualification report and not specified in the individual reports specific to the nest or the modules.

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

EXPIRES 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1) Duane Arnold Energy Center	DOCKET NUMBER (2) 05000331	LER NUMBER(S)			PAGE(S)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		91	010	00	3	OF 4

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

The installation in 1988 used the same seismic test report, which, along with an inadequate review of the qualification test report, again contributed to the cause of the omission. This later installation did have a vendor maintenance instruction that identified the requirement for the dummy load cards. This necessity was most likely overlooked because Foxboro initially was only going to sell fully loaded nests. Prior to installation the demands changed, allowing modules to be eliminated. It was discussed with the vendor and determined that the modules would still be bought and kept as spares. The vendor did not identify the full nest requirement at that time or attempt to provide the dummy load cards.

In the nests installed in 1988, there was only one bumper missing and a total of three missing dummy loads. The bumper was missing on a module that did not come with a bumper. This module is usually used in a nest with pre-installed bumpers. All other installed modules had bumpers and all module had guide rails. The RHR interlock instruments are in these nests.

In each nest installed in 1981, there were five missing dummy loads and three modules with missing guide rails and bumpers. There are no active functions resident in these nests.

III. ANALYSIS OF EVENT

Following a detailed review, it was concluded on October 2, 1991 that the nest locations which did not have guide rails or bumper pads could not be assured to remain functional following a design basis event based on existing information. The qualification test was performed at significantly higher accelerations than those postulated at the DAEC. To positively determine the operability of the nest while in the past configuration, extensive testing would be required. The equipment is in a qualified configuration now and the determination was made not to perform any special qualification testing.

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

EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Duane Arnold Energy Center	DOCKET NUMBER (2) 05000331	LER NUMBER(S)			PAGE(S)	
		YEAR 91	SEQUENTIAL NUMBER - 010	REVISION NUMBER - 00	4	OF 4

TEXT (If more space is required, use additional NRC Form 388A's) (17)

In the entirety of the four nests, there is only one active function provided (in two divisions). That function is the RHR interlock which allows containment spray at 2/3 fuel coverage and disables the permissive below that point. Containment spray is only initiated by manual operator action. The RHR interlock can also be overridden by the operators if needed. This override is clearly defined in operating instructions and in Emergency Operating Procedures. The remaining affected instruments provide indication but no automatic functions.

This condition is being reported as operation in a condition prohibited by Technical Specifications (Sections 3.2.B and 3.2.H).

IV. CORRECTIVE ACTIONS:

To correct the unqualified condition, corrective maintenance actions and engineering maintenance actions directed the installation of the appropriate guide rails, rubber bumpers and dummy loads. All maintenance was completed on September 18, 1991 and the nests now fully meet the configuration criteria of the seismic tests.

A letter is being issued informing engineering and technical staff personnel on the expected level of review of vendor documentation and informing personnel of potential weaknesses in vendor-supplied information.

A walkdown of Control Room instruments and their vendor manuals verified this is an isolated case. The vendor manual for Foxboro nests has been received and is being added to the DAEC vendor manual program.

V. ADDITIONAL INFORMATION:

A. There has been no reportable similar event at DAEC.

B. Applicable EIIS System Codes:

1. Residual Heat Removal System -- BO
2. Containment Environmental Monitoring System -- IK
3. Temperature Monitoring System -- IM
4. Panels System -- JL