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ACCESSION NBR:8810110349 DOC.DATE: 88/09/30 NOTARIZED: NO DOCKET # FACIL:50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331 AUTH.NAME AUTHOR AFFILIATION AXLINE,J.S. Iowa Electric Light & Power Co. HANNEN,R.L. Iowa Electric Light & Power Co. RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-012-00:on 880830, lack of seismic qualification for concrete block neutron shielding.

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NRC Form 386 (9-83)

IRE Form 386A (9-83) LICENSEE EVENT	REPORT (LER) TEXT CONTINU	ORT (LER) TEXT CONTINUATION APPROVED OMB NO 3150-0104 EXPIRES: 8/31/98											
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)										
		YEAR SEQUENTIAL REVISION											
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TEXT (If more space is required, use additional NRC Form 386A's) (17)													

I. DESCRIPTION OF EVENT:

During the week of July 4, 1988 with the plant at approximately 90% power, the resident inspector questioned the seismic qualification of neutron shielding constructed of unmortared concrete blocks. The shielding, which is approximately nine feet tall, fifteen feet wide, and two feet deep, is located in front of a drywell equipment hatch. Located approximately six feet from the shielding is an instrument rack which contains feedwater control instrumentation and portions of the Main Steam Line Hi Flow isolation instrumentation. A review of plant records indicated a request had been submitted to evaluate the seismic qualifications of the shielding; but no evaluation had been performed.

II. CAUSE OF EVENT:

The cause of installation of concrete block shielding without seismic qualification was the lack of procedural guidance for installation of temporary shielding. Plant documentation dated February of 1976 references the concrete block shielding used in front of the drywell equipment hatch, therefore it is reasonable to assume that this shielding has been used since very early in plant life, at which time there were no temporary shielding procedures. A procedure for installation of temporary shielding was put in place in 1984. This procedure, however, lacked guidance in determining when a seismic evaluation must be performed and therefore failed to ensure one was performed when the blocks were re-installed in the Spring of 1986 following an attempt to use a permanent method of shielding.

III. ANALYSIS OF EVENT:

The use of non-seismically qualified concrete block shielding had no effect on the safe operation of the plant. Had a seismic event occurred, it is possible that the concrete blocks would have fallen on the nearby instrument rack. The instruments on this rack feed steam line C and D flow and pressure signals to the automatic feedwater control circuitry and steam flow signals to the steam line high flow isolation logic. Worst case failures of the feedwater instrumentation would require feedwater to be controlled either manually or in the single element (vessel level is single input to controller) mode. This is a condition for which operators are trained. Worst case failures of the steam line high flow instrumentation would reduce the logic from a 1 out of 2 twice to a 1 out of 1 twice logic for steam lines A, C, and D. Although the above failures reduce the number of instruments available to isolate the steam lines on high flow by approximately 40%, they do not make this function inoperable. In addition, there are many other sensed parameters, such as steam line area temperature, steam line pressure, and steam line area radiation levels, which would detect a steam line break and initiate the required isolations. For the above

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w more spece is required, u rea so	ns there would be no e	effect on the safe one	ration of the plant due	
to th	e concrete block shiel	lding being non-seismi	cally qualified under	
any o	ther plant conditions.	•		
IV.	IMMEDIATE CORRECTIVE	ACTIONS:		
Immed	iate corrective action	ns were to determine i	f the shielding had bee	'n
seism	ically qualified. A r	review of plant record	s did not indicate that	
this	had been done. Follow	ving this determinatio	n, seismic calculations	5
were There	performed but the shie fore three steel I-bes	elding by itself, coul	d not be qualified.	
the s	hielding to ensure that	it a seismic event wou	ld not cause the	
concr	ete blocks to fall on	the nearby instrument	rack. In addition, a	
revie	w of similar radiation	n shielding was perform	med to verify the	
appro	priate documentation e	existed, no problems	were round.	
V. L	ONG TERM CORRECTIVE AC	CTIONS:		
Long	term corrective actior	is to ensure both temp	orary and permanent	
radia	tion shielding is prop	perly qualified and co	ntrolled, will involve	
revis	ion of the current shi dure will include:	leiding procedure. Sp	ecific changes to this	
pi occ				
1. A	method to ensure radi	ation shielding quali	fication is auditable	
a	nd is periodically auc	lited to ensure qualif	ication of shielding ha	S
11	or been changed by a c	inange in prant condit	ions/systems.	
2. S	pecific guidelines for	determination of the	need for a seismic	
a	nalysis of radiation s	shielding.		
3. C	larification of the di	fference between temp	orary and permanent	
ri	adiation shielding and	I the method for proces	ssing each type.	•
4. U	Tarification of the ap	oplicability of this pi Iding	rocedure to various	
۷۱.	ADDITIONAL INFORMATION	1:		
A sear	rch of the LER/Deviati	on Report database die	d not indicate previous	
simila shield	ar events involving no ding.	on-seismically qualifi	ed concrete block	
This	report is heing submit	ted for "Information (Only".	
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Iowa Electric Light and Power Company

September 30, 1988 DAEC-88-0707

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 #88-012

Gentlemen:

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

Very truly yours,

9.30-88 Rick L. Hannen

Plant Superintendent - Nuclear

RLH/JSA/go

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

NRC Resident Inspector - DAEC

File A-118a