

PRIORITY 1

(ACCELERATED RIDS PROCESSING)

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9504180202 DOC. DATE: 95/04/11 NOTARIZED: NO DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME AUTHOR AFFILIATION
 MANGAN, P.C. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 BLIND, A.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 95-001-00: on 950314, fire stops found not installed in
 several Unit 1 containment cable trays. Verified thermistor
 detection strings located in affected cable trays. W/950411
 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 7
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

RECIPIENT ID CODE/NAME	COPIES	LTTR	ENCL	RECIPIENT ID CODE/NAME	COPIES	LTTR	ENCL
PD3-1 PD	1		1	HICKMAN, J	1		1
INTERNAL: AEOD/SPD/RAB	2		2	AEOD/SPD/RRAB	1		1
FILE CENTER	1		1	NRR/DE/ECGB	1		1
NRR/DE/EELB	1		1	NRR/DE/EMEB	1		1
NRR/DISP/PIPB	1		1	NRR/DOPS/OECB	1		1
NRR/DRCH/HHFB	1		1	NRR/DRCH/HICB	1		1
NRR/DRCH/HOLB	1		1	NRR/DRSS/PRPB	2		2
NRR/DSSA/SPLB	1		1	NRR/DSSA/SRXB	1		1
RES/DSIR/EIB	1		1	RGN3 FILE 01	1		1
EXTERNAL: L ST LOBBY WARD	1		1	LITCO BRYCE, J H	2		2
NOAC MURPHY, G.A	1		1	NOAC POORE, W.	1		1
NRC PDR	1		1	NUDOCS FULL TXT	1		1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL
 DESK, ROOM P1-37 (EXT. 504-2083) TO ELIMINATE YOUR NAME FROM
 DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 27 ENCL 27

Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



April 11, 1995

United States Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852

Operating Licenses DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System,
the following report is being submitted:

95-001-00

Sincerely,

A. A. Blind
Plant Manager

/pl

Attachment

c: J. B. Martin, Region III
E. E. Fitzpatrick
P. A. Bailey - Ft. Wayne
NRC Resident Inspector
J. B. Hickman - NRC
J. R. Padget
G. Charnoff, Esq.
D. Hahn
INPO
S. J. Brewer

9504180202 950411
PDR ADDCK 05000315
S PDR

FE22
11

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)

Donald C. Cook Nuclear Plant - Unit 1

DOCKET NUMBER (2)

05000 315

PAGE (3)

1 OF 6

TITLE (4)

Fire Stops Found Not Installed in Several Unit 1 Containment Cable Trays

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	14	95	95	-- 001 --	00	04	11	95		05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		100	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)	
			20.405(a)(1)(iv)		X 50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)			
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME

P. C. Mangan, Appendix R Project Manager

TELEPHONE NUMBER (Include Area Code)

614/223-1918

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
									--

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
--	---	----	-------------------------------	-------	-----	------

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

This is a follow-up report pursuant to the one-hour telephone notification made in accordance with 10CFR50.72(b)(ii)(B) on March 14, 1995. Fire stops were found not to be installed in several Unit 1 containment cable trays as required to comply with Appendix R Section III.G.2.d. A postulated fire in the Unit 1 containment annular area, if allowed to propagate along these cable trays, could result in the loss of redundant channels of instrumentation relied upon by the Appendix R safe shutdown analysis to achieve safe shutdown.

Upon discovery, the thermistor detection strings located in the cable trays were verified operable and an hourly surveillance of containment temperature was initiated.

This condition was determined to have little safety significance due to the availability of fire detection, low combustible loadings in the affected fire zones, and the highly unlikely prospect that fire could travel over 60 feet along the cable trays before being extinguished by the fire brigade. At no time was the health and safety of the public in jeopardy due to this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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-630), 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)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)										
Cook Nuclear Plant - Unit 1		<table border="1"><tr><th>YEAR</th><th>SEQUENTIAL NUMBER</th><th>REVISION NUMBER</th></tr><tr><td>91</td><td>5</td><td>-</td></tr></table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	91	5	-	<table border="1"><tr><td>0</td><td>2</td></tr><tr><td>OF</td><td>0</td></tr></table>	0	2	OF	0
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER											
91	5	-											
0	2												
OF	0												
0	5	0	3										
1	5	9	5										
-	0	0	1										
-	0	0	0										
0	2	0	2										
OF	0	0	6										

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

Conditions prior to Occurrence

Unit 1 was in Mode 1 at 100 percent Rated Thermal Power; Unit 2 was in Mode 2 at 100 percent Rated Thermal Power.

Description of Event

On March 14, 1995, while performing a revalidation of the Appendix R Safe Shutdown Analysis, it was discovered that fire stops were not installed in several Unit 1 containment cable trays as required to comply with Appendix R Section III.G.2.d. With the discovery of the condition, it was determined that a postulated fire in Unit 1 containment annular area could result in the loss of redundant channels of steam generator level indication and RCS temperature indication required for safe shutdown.

Revision 1 of the Safe Shutdown Capability Assessment (SSCA) was submitted to the NRC on March 20, 1987. Section 8 of the SSCA, Proposed Modifications, stated that trays that are intervening combustibles between channels will be fire stopped in order to ensure compliance with Appendix R, Section III.G.2.d. The SSCA was written by a consultant, Engineering Planning and Management (EPM), contracted by AEPSC to perform the Safe Shutdown Analysis.

Because containment is a single analysis or fire area, the separation criteria of Section III.G.2 must be used to ensure separation of redundant components. Since three hour fire wrap is not used inside containment and area wide suppression and detection are not provided in the area, the only available compliance methods are Sections III.G.2.d, 20 feet of separation with no intervening combustibles, and III.G.f, radiant energy shields.

The approach taken by the original analysis was that for a fire in the east quadrants of containment, 1 and 4, credit would be taken for instrumentation and circuitry located in the west quadrants, 2 and 3, and vice versa. For instrumentation associated with Steam Generators/RCS loops, Steam Generator (SG) level and RCS temperature, this ensures that adequate instrumentation will be available to support RCS cooldown using either SGs 1 and 4 or SGs 2 and 3.

A detailed revalidation of the Safe Shutdown Analysis is currently being performed in fulfillment of a commitment established in LER 93-005. As a part of this revalidation, the ability to safely shutdown while experiencing a fire in analysis area 56, Unit 1 Containment, was reanalyzed.

The reanalysis involved highlighting all of the instrumentation circuits relied upon by the original analysis on physical layout drawings. This provided a clear picture of the spatial separation of the instrumentation circuits as well as the cable trays which traversed the containment annular areas between redundant channels of instrumentation.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Cook Nuclear Plant - Unit 1	0 5 0 0 0 3 1 5	9 5	- 0 0 1	- 0 0	0 3	OF 0 6	

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

Description of Event (cont't)

Upon review of these highlighted drawings, it was noted that several cable trays located at approximately 630 ft elevation in Unit 1 containment quadrants 3 and 4 appeared to be intervening combustibles. These trays were not fire stopped on the Unit 1 containment drawings, but the corresponding trays on the Unit 2 drawings were fire stopped. A walkdown of the Unit 1 containment verified that no fire stops were installed in the cable trays located at the 630 ft elevation. The lack of fire stops in these trays affected compliance with the 20 ft separation zone criteria for SG narrow range level and RCS temperature and pressure indications.

Cause of Event

The root cause for the lack of fire stops in Unit 1 containment cable trays could not be conclusively determined as the analysis was performed over ten years ago and detailed documentation of the analysis methodology is not available.

It is known that in September of 1984, a design change package was initiated to provide radiant energy shields inside Unit 1 containment for a number of safe shutdown instruments including RCS loop temperature indication (NTR), RCS pressure indication (NPS) and SG narrow range level indication (BLP). Documentation included in the design change package subsequent to its initiation stated that radiant energy shields were not necessary for the RCS pressure and RCS temperature instruments and associated cables because they were separated by more than 20 feet without intervening combustibles. No references were given as to the source of this information.

In April of 1985 EPM conducted a walkdown of the Unit 1 containment to identify potential intervening combustibles with respect to SG narrow range level indication (BLP) runs. Correspondence from EPM dated May 1985 indicates that the walkdown noted cable trays running between the east containment quadrants and the west quadrants below the 598 ft. elevation. These trays were identified as intervening combustibles in the 20 foot separation zone between redundant trains of BLPs. Although not documented in the design change package as such, these same trays also constituted intervening combustibles between the redundant RCS loop temperature indication (NTR) channels located in the east and west containment quadrants. These trays were subsequently fire stopped in order to provide adequate separation for the BLPs.

In October 1985 EPM was informed of a change in the routing of BLPs in Unit 2 containment. This change was included in a package which relocated various transmitters above containment flood level elevation 614'. A similar design change was processed for Unit 1, however, EPM was apparently not informed of the Unit 1 change and did not inquire about Unit 1. EPM instructed AEP to relocate several fire stops designated for cable trays located above the 625' elevation in Unit 2 containment. Although copies of this documentation was included in the

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Cook Nuclear Plant - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 5	0 0 1	0 0	0 4	OF	0 6

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

Description of Event (con't)

corresponding Unit 1 design change package, there is no indication that its impact was realized.

Consequently, fire stops were provided for cable trays spanning quadrant 3 and 4 at two elevations in Unit 2 containment, but only at the lower elevation for Unit 1 containment. The relative location of the instrumentation channels with respect to the intervening cable trays inside the two containments is almost identical.

The failure to install the required fire stops in Unit 1 can be attributed to a combination of factors. The AEP personnel responsible for developing the design changes necessary to bring the plant into compliance with Appendix R did not have a comprehensive understanding of the requirements as they pertain to the "20 feet of separation with no intervening combustibles". Consequently, a detailed review of physical layout drawings showing the location of safe shutdown instrumentation and potential intervening combustibles was not performed. EPM was heavily relied upon without a clear understanding of how they were performing the safe shutdown analysis.

Several unrelated design changes were being processed simultaneously which involved the same safe shutdown instrumentation. The location of instrumentation circuits inside containment was changing while Appendix R compliance modifications were being developed, contributing to the confusion.

Ultimately, a weakness existed in the design change review process. There was no requirement to review design changes to identify possible impact on Appendix R compliance. Had such a requirement been in place at the time the location of BLPs circuits were being changed, it is likely that the need for the fire stops would have been identified. Design change procedures were subsequently revised to incorporate this requirement.

Analysis of Event

This event is being reported in accordance with 10CFR50.73(a)(2)(ii)(B), for a condition outside the design basis.

A fire inside Unit 1 containment annular area would not have been expected to damage the redundant circuits assumed for safe shutdown based on the following:

1. The cable trays in question are provided with thermistor strings which alarm when a fire is sensed. Based upon the low combustion rate within horizontal cable trays, approximately 10 feet per hour, and the large distance between the affected redundant trains, 60 feet, plant personnel would have adequate time to extinguish a fire before the redundant train of instrumentation was affected.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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)	DOCKET NUMBER (2)	LER NUMBER (6)	PAGE (3)
Cook Nuclear Plant - Unit 1	0 5 0 0 0 3 1 5	9 5 - 0 0 1 - 0 0 0 5 OF 0 6	

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

Analysis of Event (con't)

2. The propagation of the fire along the cable trays would also be severely impeded at several points where the trays penetrate concrete walls. At these points the tray actually stops and each cable is routed separately through sealing bushings located in the wall. After exiting the wall the cables are again combined in a cable tray.
3. The areas of concern within containment have low combustible loadings and transient combustible materials in the area are strictly controlled.
4. Manual fire suppression (e.g., fire extinguishers and water hose stations located outside containment access) are readily available for fire brigade use.
5. The instrumentation cables of concern are inside rigid metal conduit which would provide some protection similar to a radiant energy shield.

In summary, this condition was determined to have little safety significance due to the availability of fire detection, low combustible loadings in the affected fire zones, and the highly unlikely prospect that fire could travel over 60 feet along the cable trays before being extinguished by the fire brigade.

Corrective Action

At the time the condition was discovered, the thermistor detection strings located in the affected cable trays were verified operable, and hourly monitoring of containment temperature was initiated.

A modification was initiated to install the required fire stops. The fire stop installation was completed on March 17, 1995.

The Appendix R revalidation project is scheduled to be completed by the end of 1995. Comprehensive procedures which include independent verification have been developed for the performance of the revalidation. These procedures will reduce the probability of similar errors occurring in the revised analysis as well as help identify errors in the existing analysis.

The safe shutdown reanalysis which is being performed is being carried out by in-house personnel, with limited assistance from an outside consultant. This will ensure that AEP personnel are familiar with Appendix R requirements and the safe shutdown analysis for Cook Nuclear Plant.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Cook Nuclear Plant - Unit 1

YEAR SEQUENTIAL REVISION

0 5 0 0 0 3 1 5 9 5 - 0 0 1 - d 0 d 6 OF 0 6

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

Failed Component Identification

NONE

Previous Similar Events

316/93-005

315/90-010

315/94-013