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ACCESSION NBR:9009060178 DOC.DATE: 90/08/28 NOTARIZED: NO DOCKET #
 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana & 05000315
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-006-00:on 900730,inadequate emergency lighting due to
 failure to identify necessity for rev.

W/9 ltr.

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August 28, 1990

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 Reporting System, the following
report is being submitted:

90-006-00

Sincerely,

A.A. Blind
Plant Manager

AAB:clj

Attachment

cc: D.H. Williams, Jr.
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LICENSEE EVENT REPORT (LER)

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-830), 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)
D. C. Cook Plant - Unit 1

DOCKET NUMBER (2)
0 5 0 0 0 3 1 5

PAGE (3)
1 OF 0 5

TITLE (4)
Inadequate Emergency Lighting Due to Failure to Identify Necessity for Revision

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(S)
0 7	3 0	9 0	9 0	0 0 6	0 0	0 8	2 8	9 0	D. C. Cook Unit 2	0 5 0 0 0 3 1 6
										0 5 0 0 0 0 0 0

OPERATING MODE (9) 1

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

20.402(b)	20.406(c)	50.73(e)(2)(iv)	73.71(b)
20.406(a)(1)(i)	50.38(c)(1)	50.73(e)(2)(v)	73.71(c)
20.406(a)(1)(ii)	50.38(c)(2)	50.73(e)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(e)(2)(viii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(e)(2)(viii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(e)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME S. J. Brewer - Nuclear Safety & Licensing
Section Manager

TELEPHONE NUMBER
AREA CODE 6 1 4 2 2 3 - 2 0 2 0

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)

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

Since January, 1990, three separate walkdowns were performed to determine the adequacy of the emergency lighting associated with Appendix R. As a result of these walkdowns, it was determined that in some areas the emergency lighting had to be improved to facilitate the accomplishment of the Emergency Remote Shutdown (ERS) procedures.

As corrective action, an expedited Design Change was issued to install additional emergency lighting by August 30, 1990. In addition, as an interim measure, miner's hard hats with battery-powered lights were ordered and are now placed near the control rooms for Units 1 and 2. The preventive actions taken to preclude recurrence of the event will include a detailed review of all future changes to the ERS procedures for their impact on the Appendix R emergency lighting.

The event does not have any significant safety consequences or implications because it is believed that, by the use of flashlights in the areas of inadequate lighting, the ERS procedures can be followed during an Appendix R fire. Therefore, the event does not present a significant hazard to the public health and safety.

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-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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D. C. Cook Plant - Unit 1

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

Conditions Prior to Occurrence

Both Cook Nuclear Plant units were operating in Mode 1.

Description of Event

Since January 1990, three separate walkdowns of the auxiliary building (EIIS/NF) were performed to determine the adequacy of the emergency lighting associated with Appendix R. The first such walkdown was conducted on April 19, 1990. This walkdown was performed by first turning off all of the normal plant lighting in the auxiliary building and then moving two teams throughout the building. The teams evaluated the adequacy of the lighting along the access/egress routes as well as the lighting of the various Emergency Remote Shutdown (ERS) stations, panels, valves, switchgear, instruments, etc., that are necessary to bring Cook Nuclear Plant to a safe shutdown condition during and following an Appendix R fire. Thirty-eight areas and components were identified as having less than optimum emergency lighting.

Another walkdown of the auxiliary building emergency lighting was performed on June 20 and 21, 1990. The purpose of this walkdown was to select exact mounting locations for new battery power packs (EIIS/IP-BTRY) and new lighting heads (EIIS/IP-LF) for areas and components identified during the April 19, 1990 walkdown. Also, areas and components that were not checked during the April walkdown, because of the lack of time, were visited. The adequacy of the emergency lighting in these areas was reviewed and new battery pack and lighting head locations were also selected. The auxiliary building lighting was not turned off; however, by careful observations and the use of a sensitive hand-held light meter, a judgment was made as to the adequacy of the Appendix R emergency shutdown lighting at all of the visited locations. In some instances, it was possible to select mounting locations for new lighting heads that will tap into existing battery packs. Appropriate Plant drawings were red-lined to show these new mounting locations and will be issued later as "approved for installation" drawings. The end result of this walkdown was the recommendation that 17 new battery power packs, and 56 new local (mounted on the power packs) and remote (mounted separately from the power packs) lighting heads should be installed to enhance emergency lighting. Also, some of the presently-installed 25-watt lighting heads will be replaced with new 12-watt lighting heads. The new 12-watt lighting heads will provide a light intensity that is comparable to the older 25-watt lighting heads. The number of new battery packs and new lighting heads may change slightly because of possible changes in the emergency remote shutdown procedure. The installation of the new battery packs and lighting heads is being expedited under a Design Change (RFC 12-4108) and is scheduled for completion by August 30, 1990 (with the exception of the lighting for the Unit 1 Control Room which is scheduled to be completed by 12-1-90).

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.

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D. C. Cook Plant - Unit 1		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

On June 28, 1990, a Condition Report was issued that documented a concern regarding the adequacy of the existing emergency lighting to assist in evaluating the condition and determining reportability. Another walkdown of the auxiliary building Appendix R emergency lighting was made on July 17, 1990. The purpose of this walkdown was to recheck the lighting of the components and routes that were identified during the June 20 and 21, 1990 walkdown and to determine whether re-aiming existing lighting heads (presently aimed at other shutdown components and routes) could improve the lighting condition. Since the auxiliary building normal lighting could not be turned off (because of Unit 2 outage work in progress), a change in the lighting of 0.4 or greater foot-candles was used as the criteria for determining lighting adequacy. The 0.4 criteria was obtained from the Power Systems and Human Factors Section Personnel on July 16, 1990. Lighting adequacy was determined by holding a sensitive light meter at each component and turning off and on the closest Appendix R lighting head. Of the 64 components whose lighting levels were measured, only 8 components had lighting levels that were improved by ≥ 0.4 footcandles. The remaining 56 components either did not have any lighting heads or power battery packs installed or obstructions (pipes, supports, etc.) prevented adequate lighting from falling on these components. Re-aiming nearby lighting heads improved to an adequate status the lighting of 6 additional components; however, it was considered doubtful whether an operator could be expected to perform this action in a timely manner during an emergency shutdown situation. The light meter was not used to determine the adequacy of lighting levels on access and egress routes. If an access or egress route had an Appendix R lighting head aimed at it, it was judged as having adequate lighting. During the walkdown an additional 5 components and routes were identified as needing additional Appendix R lighting, and these items have been added to RFC 12-4108. The total number of Appendix R components and access/egress routes identified during the July 17, 1990 walkdown as being inadequately lit is 61. On July 30, 1990, it was confirmed that the inadequate emergency lighting situation in some locations of the auxiliary building placed the Plant in a condition not covered by the emergency procedures since it is assumed in the procedures that adequate lighting exists. The NRC was notified, via the ENS, at 1141 hours, July 30, 1990.

As stated above, the additional Appendix R lighting will be installed under expedited RFC 12-4108. During the interim period, miner's hard hats with lamps attached powered by a portable battery pack that attaches to the operator's belt have been placed close to the control rooms.

Cause of Event

Two possible root causes were identified. The first is failure to review changes to the ERS procedures for their impact on Appendix R emergency

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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D. C. Cook Plant - Unit 1

YEAR

SEQUENTIAL
NUMBERREVISION
NUMBER

0 | 5 | 0 | 0 | 0 | 3 | 1 | 5 | 9 | 0 | - | 0 | 0 | 6 | - | 0 | 0 | 0 | 4 | OF | 0 | 5

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

lighting. The second is inadequate follow-up or completion of two previous RFC's (RFC's 12-2601 and 12-2698) issued to address compliance with Appendix R emergency lighting.

Analysis of Event

The inadequate emergency lighting situation in some locations of the auxiliary building placed the Plant in a condition not covered by the emergency procedures since it is assumed in the procedures that adequate lighting exists. The condition must therefore be reported under 10CFR50.73(a)(2)(ii)(C). However, by the use of flashlights in the areas of inadequate lighting, the ERS procedures can be followed during an Appendix R fire and the units can be placed and maintained in a safe shutdown condition. The health and safety of the general public should not be impacted by the inadequate Appendix R emergency lighting.

Corrective Actions

The corrective action taken involved the issuance of expedited RFC (12-4108) to install additional emergency lighting by August 30, 1990. In the interim, appropriate Operations Department Personnel will use lamp-type miner's hats so that emergency procedures could be performed to place and maintain the reactor in a stable condition during an Appendix R fire.

As part of the preventive actions to be taken to preclude recurrence of the event, all future changes to the ERS procedures will be carefully reviewed for their impact on Appendix R emergency lighting. If any new components requiring manual action during the implementation of the ERS procedure are added, then additional emergency lighting will be installed, if necessary. The adequacy of the emergency lighting on the access/egress routes (for the new component) will be verified and, if inadequate, new emergency lighting will be installed.

In addition, General Procedure 3.1 (Design Changes) will be reviewed to determine if any changes to the Design Change Process are warranted.

Failed Component Identification

None.

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

Previous Similar Events

For details of previous similar events, please consult the following references:

1. Letter, C. E. Norelius, Director, Division of Engineering and Technical Programs to John E. Dolan, Vice President, Indiana and Michigan Electric Company, dated September 22, 1982. This letter transmits the result of a Special Team Inspection in which emergency lighting was addressed.
2. Donald C. Cook Nuclear Plant Units 1 and 2 Safety Evaluation Report Alternate Safety Shutdown Procedures, dated January 28, 1987, and its attachment, "Brookhaven National Laboratory Technical Evaluation Report for USNRC, Review of Appendix R Procedures for Post-Fire Remote Emergency Shutdown Outside the Control Room," dated November 6, 1986.

