

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8803220251 DOC. DATE: 88/03/14 NOTARIZED: NO DOCKET #  
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana & 05000315  
 AUTH. NAME AUTHOR AFFILIATION  
 BEILMAN, T. P. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele  
 SMITH, W. G. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-024-00: on 871229, fuses installed to provide  
 electrical isolation resulted in potential for fire. Caused  
 by improper application of selectivity ratios for sizing  
 installed fuses. Procedure revs issued. W/880314 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

## NOTES:

|           | RECIPIENT<br>ID CODE/NAME | COPIES<br>LTTR ENCL | RECIPIENT<br>ID CODE/NAME | COPIES<br>LTTR ENCL |
|-----------|---------------------------|---------------------|---------------------------|---------------------|
|           | PD3-3 LA                  | 1 1                 | PD3-3 PD                  | 1 1                 |
|           | STANG, J                  | 1 1                 |                           |                     |
| INTERNAL: | ACRS MICHELSON            | 1 1                 | ACRS MOELLER              | 2 2                 |
|           | AEOD/DOA                  | 1 1                 | AEOD/DSP/NAS              | 1 1                 |
|           | AEOD/DSP/ROAB             | 2 2                 | AEOD/DSP/TPAB             | 1 1                 |
|           | ARM/DCTS/DAB              | 1 1                 | DEDRO                     | 1 1                 |
|           | NRR/DEST/ADS7E4           | 1 0                 | NRR/DEST/CEB8H7           | 1 1                 |
|           | NRR/DEST/ESB 8D           | 1 1                 | NRR/DEST/ICSB7A           | 1 1                 |
|           | NRR/DEST/MEB9H3           | 1 1                 | NRR/DEST/MTB 9H           | 1 1                 |
|           | NRR/DEST/PSB8D1           | 1 1                 | NRR/DEST/RSB 8E           | 1 1                 |
|           | NRR/DEST/SGB 8D           | 1 1                 | NRR/DLPQ/HFB10D           | 1 1                 |
|           | NRR/DLPQ/QAB10A           | 1 1                 | NRR/DOEA/EAB11E           | 1 1                 |
|           | NRR/DREP/RAB10A           | 1 1                 | NRR/DREP/RPB10A           | 2 2                 |
|           | NRR/DRTS/SIB9A1           | 1 1                 | NRR/PMAS/ILRB12           | 1 1                 |
|           | REG. FILE 02              | 1 1                 | RES TELFORD, J            | 1 1                 |
|           | RES/DE/EIB                | 1 1                 | RES/DRPS DIR              | 1 1                 |
|           | RGN3 FILE 01              | 1 1                 |                           |                     |
| EXTERNAL: | EG&G GROH, M              | 4 4                 | FORD BLDG HOY, A          | 1 1                 |
|           | H ST LOBBY WARD           | 1 1                 | LPDR                      | 1 1                 |
|           | NRC PDR                   | 1 1                 | NSIC HARRIS, J            | 1 1                 |
|           | NSIC MAYS, G              | 1 1                 |                           |                     |

TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 44

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
D. C. COOK PLANT - UNIT 1DOCKET NUMBER (2)  
0 5 0 0 0 3 1 5 1 OF 0 3

TITLE (4) Deficient Design Results in the Failure to Provide Proper Local Shutdown and Indication Panel Fuse/Breaker Coordination.

| 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) |   |   |   |                     |                 |
| 1              | 2   | 9    | 8              | 7                 | 0               | 2               | 4   | 0    | 0                             | 3 | 1                | 4 | 8 | 8 | D. C. Cook - Unit 2 | 0 5 0 0 0 3 1 6 |
|                |     |      |                |                   |                 |                 |     |      |                               |   |                  |   |   |   |                     | 0 5 0 0 0 3 1 6 |

| OPERATING MODE (9) |       | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) |  |                  |  |                      |  |  |  |  |  |
|--------------------|-------|--|--|------------------|--|----------------------|--|--|--|--|--|
| POWER LEVEL (10)   | 0 900 | 20.402(b)  |  | 20.405(c)        |  | 50.73(a)(2)(iv)      |  | 73.71(b)   |  |  |  |
|                    |       | 20.405(a)(1)(i)  |  | 50.38(c)(1)      |  | 50.73(a)(2)(v)       |  | 73.71(c)   |  |  |  |
|                    |       | 20.405(a)(1)(ii)   |  | 50.38(c)(2)      |  | 50.73(a)(2)(vii)     |  | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |  |  |  |
|                    |       | 20.405(a)(1)(iii)  |  | 50.73(a)(2)(ii)  |  | 50.73(a)(2)(viii)(A) |  |  |  |  |  |
|                    |       | 20.405(a)(1)(iv)   |  | 50.73(a)(2)(iii) |  | 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  | TELEPHONE NUMBER                |
|---|---------------------------------|
| T.P. Beilman<br>Instrumentation and Control Department Superintendent | AREA CODE 6 1 6 4 6 5 - 5 9 0 1 |

## 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) | NO                       | EXPECTED SUBMISSION DATE (16) | MONTH | DAY | YEAR |
|---|--------------------------|-------------------------------|-------|-----|------|
| <input checked="" type="checkbox"/>             | <input type="checkbox"/> |                               |       |     |      |

## ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (15)

As a result of the condition reported in LER 50-315/87-0023, fuses were installed to provide electrical isolation between the various sets of local shutdown and indication (LSI) panels (Unit 1 installation completed 12/29/87, Unit 2 installation completed 12/30/87). The problem described herein was discovered 1/28/88, during final design verification of the as-built drawings.

As part of this design verification, a coordination analysis was performed for the fuses and upstream breaker. The analysis showed that full coordination could not be assured. Consequently, the potential existed for a fire, in either unit, to result in the loss of power and indication at the LSI panels and indication of T-HOT and T-COLD and one of four channels of pressurizer level in the affected unit's control room. Immediate actions taken following site notification involved establishing fire watches for the areas containing the LSI panels (2/3/88). The fire watches were terminated on 2/8/88 following issuance of procedure revisions providing steps required to manually reestablish power to the LSI panels.

This event occurred as a result of improper application of selectivity ratios for sizing the installed fuses. To prevent recurrence Electrical engineers will be given guidance on the use of selectivity ratios and their applications. This training will be completed 4/15/88.

8803220251 880314  
PDR ADDCK 05000315  
S PDR

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/88

| FACILITY NAME (1)  | DOCKET NUMBER (2) | LER NUMBER (6) |                   |                 | PAGE (3) |    |     |
|--------------------|-------------------|----------------|-------------------|-----------------|----------|----|-----|
|                    |                   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |    |     |
| D.C. COOK - UNIT 1 | 0 5 0 0 0 3 1 5   | 8 7            | — 0 2 4           | — 0 0           | 0 2      | OF | 0 3 |

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

Conditions Prior to Occurrence  
(Conditions date of discovery)

Unit 1 - Mode 1 (Power Operation), 90 percent reactor thermal power  
Unit 2 - Mode 1 (Power Operation), 80 percent reactor thermal power

Description of Event

As a result of the condition reported in LER 50-315/87-23, fuses (EIIS/FU) were installed to provide electrical isolation between the various sets of local shutdown and indication (LSI) panels (EIIS/PL) [Unit 1 installation completed on December 29, 1987, Unit 2 installation completed on December 30, 1987]. The problem described herein was discovered on January 28, 1988, during final design verification of the as-built drawings that reflected the newly installed fuses.

As part of this design verification, a coordination analysis was performed for the fuses and upstream breaker (EIIS/BKR). The analysis showed that full coordination could not be assured since some overlap existed between the installed fuses and the upstream breaker. Consequently, the potential existed for a fire, in either unit, to result in the loss of power and indication at the LSI panels and indication of T-HOT and T-COLD (EIIS/AB-TI) and one of four channels of pressurizer level (EIIS/AB-LI) in the affected unit's control room.

Immediate actions taken following site notification involved establishing fire watches for the areas containing the LSI panels (1100 hours, February 3, 1988). With the exception of the subject LSI panels, there were no inoperative components, systems or structures that contributed to this event.

In a conversation between Mr. P.A. Barrett (AEPSC - NS&L) and Mr. D. Butler (NRC Region III Inspector) on February 29, 1988, Mr. Butler indicated that his management had granted an extension for the submittal of this LER to March 14, 1988.

Cause of Event

This event occurred as a result of a design deficiency (improper application of selectivity ratios for sizing the installed fuses).

Analysis of Event

This report is being submitted pursuant to 10CFR50.73 (a) (2) (ii) (B), a condition identified which is outside the design bases.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

| FACILITY NAME (1)         | DOCKET NUMBER (2) | LER NUMBER (8) |                   |                 | PAGE (3) |      |   |
|---------------------------|-------------------|----------------|-------------------|-----------------|----------|------|---|
|                           |                   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |      |   |
| D. C. COOK PLANT - UNIT 1 | 0 5 0 0 0 3 1 5   | 8 7            | — 0 2 4           | — 0 0           | 0 3      | OF 0 | 3 |

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Analysis of Event Con't

Due to the lack of coordination between the circuit protection devices, certain postulated fires in either unit could have lead to loss of power and indication at the LSI panels and indication of T-HOT and T-COLD and one of four channels of pressurizer level in that unit's control room. We believe, however, that LSI panels and those control room indications lost would not have been necessary in the event of a fire at any LSI panel location because adequate control capability and indication of required process variables would have been available in the same unit's control room. Therefore, we believe the condition does not represent a significant risk to public health and safety.

Corrective Actions

Operators were provided instructions for the steps required to manually reestablish power to the LSI panels. This was implemented by effecting change sheets to the appropriate procedures, and notifying the operators via an "Operating Memo". Once it was ensured that the necessary instructions were in place fire watches were terminated (2146 hours, February 8, 1988).

Electrical engineers working on the D.C. Cook Nuclear Plant will be given guidance on the use of selectivity ratios and their applications in designing circuit protection schemes. This training will be completed by April 15, 1988.

Failed Component Identification

None.

Previous Similar Events

LER 50-315/87-23

Indiana Michigan  
Power Company  
Cook Nuclear Plant  
P.O. Box 458  
Bridgman, MI 49106  
616 465 5901



March 14, 1988

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

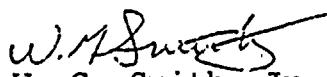
Operating License DPR-58  
Docket No. 50-315

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:

87-024-00

Sincerely,

  
W. G. Smith, Jr.  
Plant Manager

WGS:clw

Attachment

cc: D. H. Williams, Jr.  
A. B. Davis, Region III  
M. P. Alexich  
R. F. Kroeger  
H. B. Brugger  
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