

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8807150060 DOC. DATE: 88/07/05 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 88-004-00: on 880606, use of improperly aligned test
 recorder results in nuclear instrumentation channel error.
w/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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| | NRR/DRIS/SIB 9A | 1 | | | | 1 | NUDOCS-ABSTRACT | 1 | | | | 1 |
| | REG FILE 02 | 1 | | | | 1 | RES TELFORD, J | 1 | | | | 1 |
| | RES/DE/EIB | 1 | | | | 1 | RES/DRPS DEPY | 1 | | | | 1 |
| | RGN3 FILE 01 | 1 | | | | 1 | | | | | | |
| EXTERNAL: | EG&G WILLIAMS, S | 4 | | | | 4 | FORD BLDG HOY, A | 1 | | | | 1 |
| | H ST LOBBY WARD | 1 | | | | 1 | LPDR | 1 | | | | 1 |
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LICENSEE EVENT REPORT (LER)

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

TITLE (4) **USE OF IMPROPERLY ALIGNED TEST RECORDER RESULTS IN NUCLEAR INSTRUMENTATION CHANNEL BEING OUT OF SPECIFICATION**

| 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 | 6 | 88 | 88 | 004 | 00 | 0 | 7 | 88 | | | 0 5 0 0 0 |
| THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | | | | | | | | | |

| | | | | |
|--------------------------------|-------------------|------------------|----------------------|--|
| OPERATING MODE (8) 1 | 20.402(b) | 20.406(e) | 50.73(a)(2)(iv) | 73.71(b) |
| POWER LEVEL (10) 0 1910 | 20.406(a)(1)(i) | 50.38(a)(1) | 50.73(a)(2)(v) | 73.71(c) |
| | 20.406(a)(1)(ii) | 50.38(a)(2) | 50.73(a)(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(a)(2)(viii)(A) | |
| | 20.406(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | 20.406(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(ix) | |

LICENSEE CONTACT FOR THIS LER (12)
 NAME **T. P. BEILMAN** TELEPHONE NUMBER
INSTRUMENTATION AND CONTROL DEPARTMENT SUPERINTENDENT
 AREA CODE **6116** TELEPHONE NUMBER **41651-159011**

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) NO
 EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

On June 6, 1988, while performing a routine calibration of the Nuclear Instrumentation System Power Range Channel N-41, the "as found" value of the Neutron Flux High Rate module time constant was incorrectly adjusted due to an improperly aligned test recorder input filter. The error was discovered during the routine supervisory procedure test data review. The adjustment resulted in the rate module time constant being left non-conservative (1.7 seconds) with respect to the Technical Specification requirements (equal to or greater than 2.0 seconds). Power Range Channel N-41 was recalibrated to the correct values. The other three power range channels remained operable throughout this event.

Administrative controls have been implemented to prevent recurrence of this event.

8807150060 880705
 PDR ADOCK 05000315
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Conditions Prior To Occurrence

Unit One in Mode 1 (90 percent reactor thermal power).

Description of Event

On June 6, 1988 while performing a routine calibration procedure on the Nuclear Instrumentation System Power Range Nuclear Flux Channel N-41 (EIIS-JC/JS), the "as found" value of the rate module time constant was found out of specification in a conservative direction as determined by the test equipment being used. After verification that the proper test procedure had been followed, the rate module time constant was adjusted to the specified value. Power Range Channel N-41 was returned to service at 1540 hours on June 6, 1988.

During the routine supervisory review of the test data, the supervisor observed that the shape of the recorder trace was different than expected (see attached graphs) and initiated an investigation. The test equipment used was a Western Graphtec, Model 3101 two channel strip chart recorder. The recorder is equipped with an input filter that can be switched in or out of service. The input filter is used to dampen rapid fluctuations or noise during certain applications. The investigation revealed that during the calibration of Power Range Channel N-41, the input filter was in the IN position, which is incorrect for this application. The input filter being in the circuit affected the recorder output graph which is used to determine the response of the instrument circuit.

Power Range Channel N-41 was declared inoperable at 0844 hours on June 7, 1988. The rate module time constant was recalibrated and returned to service at 1100 hours on June 7, 1988. The total time that Power Range Channel N-41 was in service with the non-conservative time constant was 17.1 hours. There were no calibrations performed on the other three NIS Power Range channels during the period N-41 was incorrectly calibrated.

Cause of the Event

The input filter switch is located inside the recorder and is an integral part of a module that is plugged into the recorder. Its position is not readily apparent. The input filter switch is normally kept in the OFF position. Lack of identification on the test recorder that the input filter was switched into the circuit as an off normal condition was the primary cause of the event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Analysis of Event

This event is being reported under 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the Technical Specifications.

The Technical Specification Table 2.2-1 Allowable Value for the rate module time constant is equal to or greater than 2 seconds. The as left value following the erroneous adjustment of Power Range Channel N-41 was 1.7 seconds, making the channel technically inoperable.

The error in setting the rate constant would affect the Power Range Neutron Flux, high positive and high negative rate trips. Each of these trips is composed of 4 channels, with 2 channels required to trip. Since the error only rendered one channel inoperable, a sufficient number of channels were available to provide the trip function even under the assumption of the failure of an additional channel. With regard to the Unit 1 accident analyses, no credit is taken for the Neutron Flux High Positive rate trip. This trip would provide protection in the event of rod (EIIS-AA/JC) ejection accidents, but it is complemented by the Power Range Neutron Flux high and low trips, for which credit is taken in the Unit 1 analyses. The negative flux rate trip provides protection against rod drop accidents. Rod drop accidents are primarily a concern when the control rods are in automatic, since the dropped rod(s) may result in the automatic rod control system (EIIS-JD) driving rods out of the core. This would occur in order to compensate for the negative insertion caused by the dropped rod(s), and could result in a power overshoot and subsequent approach to DNB. Cook Nuclear Plant Unit 1, however, has been operating the entire cycle with the rods in manual control. Thus, rods would not be driven out of the core (EIIS-AC) in the event of a rod drop accident, and the non-conservatism in the time constant setting would not pose a problem.

For the reasons detailed above, it is concluded that public health and safety was not significantly impacted by the improper setting of the power range neutron flux time constant.

Corrective Action

The test equipment misconfiguration was corrected and the rate module time constant recalibrated on June 7, 1988.

The test recorder usage history was reviewed to determine where it had been used between the time the filter was left on and the time of discovery. It was determined that the recorder had not been used for any applications where the input filter would have affected the test results.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

To control the recorder filter switch position, a "Limited Use" tag will be affixed to the recorder during times that the filter is on.

Additionally, technician direction will be procedurally controlled, thus preventing an inadvertent return to service of an incorrectly calibrated channel. We will continue to evaluate the effectiveness of the recorder tagging system and initiate procedural controls if deemed necessary.

Failed Component Identification

None.

Previous Similar Events

None.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

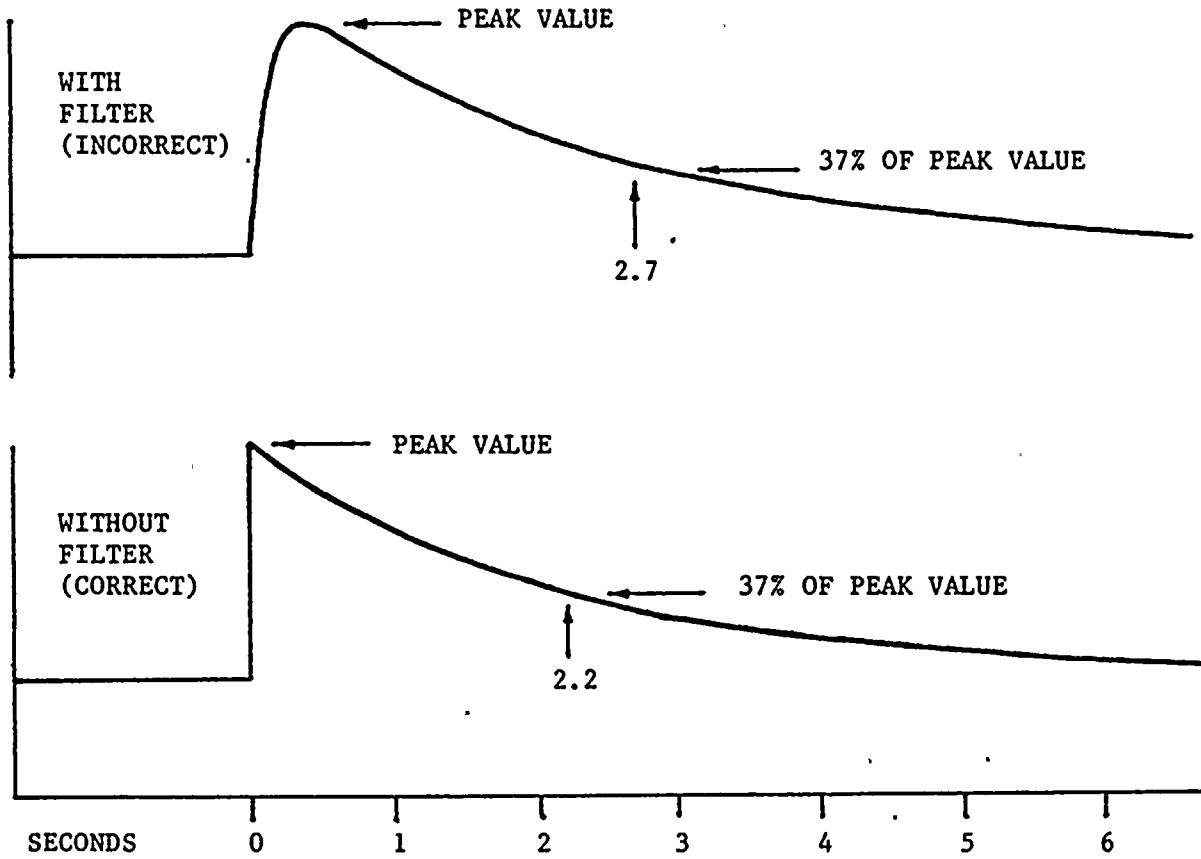
D. C. COOK NUCLEAR PLANT - UNIT 1

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TEXT (If more space is required, use additional NRC Form 365A's) (17)



EFFECT OF FILTER ON RECORDED OUTPUT
OF RATE MODULE TIME CONSTANT
ADJUSTED AT 2.2 SECONDS

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



July 5, 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:

88-004-00

Sincerely,


W. G. Smith, Jr.
Plant Manager

WGS:clw

Attachment

cc: D. H. Williams, Jr.
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