

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8801210055      DOC. DATE: 88/01/14      NOTARIZED: NO      DOCKET #  
 FACIL: 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316  
 AUTH. NAME                      AUTHOR AFFILIATION  
 ROSS, C.A.                      Indiana Michigan Power Co.  
 SMITH, W.G.                     Indiana Michigan Power Co.  
 RECIP. NAME                    RECIPIENT AFFILIATION

SUBJECT: LER 87-014-00: on 871215, surveillance missed due to personnel  
 error in process computer software programming.

DISTRIBUTION CODE: IE22D      COPIES RECEIVED: LTR 1 ENCL 1      W/8      ltr. 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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	REG FILE      02	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RES/DRPS DIR	1	1
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) D. C. Cook Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 1 6	PAGE (3) 1 OF 0 3
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TITLE (4)  
Missed Surveillance Due to Personnel Error in Process Computer Software Programming

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	15	8	7	014	0	0	011488			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 (9) 1	POWER LEVEL (10) 0 8 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.38(c)(1)	<input type="checkbox"/> 50.38(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
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LICENSEE CONTACT FOR THIS LER (12)

NAME C. A. Ross - Computer Sciences Department Superintendent	TELEPHONE NUMBER AREA CODE 6 1 6 4 6 5 - 5 9 0 1
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 15, 1987, at 1409 hours, while investigating the cause of a failure of the P-250 process computer, a programming error was discovered that had caused the Quadrant Power Tilt Ratio (QPTR) alarm to be inoperable. The condition had existed since December 7, 1987, when the Annunciator program was inadvertently written over during software troubleshooting.

Surveillance requirement 4.2.4.b was not performed during this eight day period, because it was not known that the alarm function was inoperable. Should an actual QPTR have occurred the potential existed that the action statement time limit for Technical Specification 3.2.4 might have been missed.

The computer continued to calculate the QPTR during this period. The ratio did not exceed 1.02.

The cause of the annunciator program being inoperable was personnel error. The space allocation for the software program was not checked prior to loading into the system disk. All computer analysts who have the responsibility of performing this task have been counselled in the proper method of P-250 computer software troubleshooting and program installation.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  D. C. Cook Nuclear Plant - Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   3   1   6   8   7   -   0   1   4   -   0   0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   7   -	0   1   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

Unit 1 in Mode 1 at 90 percent Reactor Thermal Power  
Unit 2 in Mode 1 at 80 percent Reactor Thermal Power

Description of Event

On December 15, 1987, at approximately 1409 hours while investigating the cause of a failure of the P-250 plant process computer (EIIS/ID-CPU), a programming error was discovered in the Quadrant Power Tilt Ratio Annunciator Computer Program. This alarm program is called when the P-250 plant process computer senses the tilt ratio to be greater than 1.02 and alerts the operator of the condition.

The program error had existed since December 7, 1987, when the annunciator program was inadvertently written over while troubleshooting a P-250 computer program software change.

Technical Specification 3.2.4 requires the Quadrant Power Tilt Ratio (QPTR) not to exceed 1.02. The action statement for this limiting condition for operation requires compensatory measures to be taken within two hours if the QPTR exceeds 1.02. Surveillance requirement 4.2.4.b requires a manual calculation of the QPTR be performed every twelve hours if the QPTR alarm is inoperable.

The P-250 computer was performing its function and calculating the QPTR during this eight day period (12-7 thru 12-15). A review of the trend printout for this period shows that the QPTR did not exceed 1.02. Although the QPTR calculation was being performed, the operators did not know that the alarm function was inoperable and as a result, the surveillance requirement to manually calculate the QPTR was not performed as required.

If an actual high QPTR had occurred the P-250 computer would have failed. This would have caused the operators to believe that a surveillance was required to be performed within the next twelve hours, rather than having only two hours to comply with the action statement requirements of T/S 3.2.4. Consequently, a potential existed for an action statement time limit to be missed.

No other components, systems or structures were inoperable which contributed to this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  D. C. Cook Nuclear Plant-- Unit 2	DOCKET NUMBER (2)  0 5 0 0 0 3 1 6	LER NUMBER (6)			PAGE (3)		
		YEAR 8 7	SEQUENTIAL NUMBER 0 1 4	REVISION NUMBER 0 0	0 3	OF	0 3

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

Cause of Event

The cause of the event was cognitive personnel error. The computer analyst did not check the size of the software program to ensure adequate space was available for installation.

Analysis of Event

This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as operation prohibited by Technical Specification surveillance requirement 4.2.4.b. The surveillance requirement of manually calculating the QPTR every twelve hours was not performed because it was not known that the annunciator program was inoperable. Also there existed a potential to miss the two hour action statement for Technical Specification 3.2.1.

During the entire period the P-250 was calculating the tilt ratio and it never exceeded the 1.02 limit. If an actual alarm signal had occurred the P-250 computer would have failed causing the operator to perform the same actions necessary to determine the quadrant power tilt ratio.

The QPTR is periodically checked by the Operators. The Nuclear Section reviews the QPTR daily. The weekly surveillance requirement of manually calculating the QPTR was performed during this event.

Since the QPTR was being calculated and did not exceed 1.02 for the duration of the event, it can be concluded that the health and safety of the public were not affected.

Corrective Actions

When the program error was discussed on December 15, 1987, the computer was immediately corrected by bootstrapping and reloading the alarm program into the computer. All computer analysts who have the responsibility of performing this task have been counseled in the proper method of P-250 computer software troubleshooting and program installation.

Failed Component Identification

None

Previous Similar Events

RO 79-036/036-0

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



January 14, 1988

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

Operating License DPR-74  
Docket No. 50-316

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:

87-014-00

Sincerely,

*A. Alan Blind*  
W. G. Smith, Jr.  
Plant Manager

WGS:afh

Attachment

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