CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9711200167 DOC.DATE: 97/11/14 NOTARIZED: NO DOCKET #
FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
AUTH.NAME AUTHOR AFFILIATION
GILLESPIE,B. Indiana Michigan Power Co.
BLIND,A.A. Indiana Michigan Power Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-016-01:on 970912,operation of RHR was contrary to USFAR section 9.33.Cause not determined.Revised procedures 1/2 OHP 4021.017.001.W/971114 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
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INDIANA MICHIGAN POWER

November 14, 1997

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

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:

97-016-01

Sincerely,

A. A. Blind
Site Vice President

/mbd

Attachment

c: A. B. Beach, Region III
E. E. Fitzpatrick
P. A. Barrett
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Records Center, INPO
NRC Resident Inspector

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	Page 1 of 4
Donald C. Cook Nuclear Plant - Unit 1	50-315	

TITLE (4)
Operation of the Residual Heat Removal System Contrary to the UFSAR Could Result in a Condition That Would Prevent the Fulfillment of the Safety Function of a System

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 NAME	DOCKET NUMBER
09	12	97	97	-- 016 --	01	11	14	97	Cook Unit 2	50-316
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	5
POWER LEVEL (10)	0

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

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71
	20.2203(a)(2)(i)		20.2203(a)(4)	X	50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. Bob Gillespie, Operations Manager	616/465-5901, x2535

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)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES	X	NO				

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

On September 12, 1997, with Units 1 and 2 in Mode 5, it was discovered that current operating procedures for the Residual Heat Removal (RHR) System did not prevent the operation of both RHR pumps when the Reactor Coolant System (RCS) is open to atmosphere. This is contrary to Updated Final Safety Analysis Report (UFSAR) Section 9.3.3 which states, "Only one residual heat removal (RHR) pump will be operated when the reactor coolant system is open to the atmosphere to prevent damaging both pumps in the unlikely event that suction should be lost". This event is being reported in accordance with 10 CFR 50.73 (a)(2)(v) as a condition that potentially could have prevented the fulfillment of the safety function of a structure or system.

The cause of not including all of the UFSAR requirements into the RHR procedure could not be determined. Inadequate understanding of the UFSAR and inadequate safety screenings prevented this issue from being identified sooner. All applicable procedures have been revised to include the restriction that only one RHR pump be operated when the RCS is open to atmosphere.

Based on vendor manual information for the pump and additional information from the UFSAR, if the RCS level is greater than half loop, then the pump suction lines are completely filled, with enough Net Positive Suction Head to preclude the formation of air pockets and enough level exists above the suction source to prevent vortexing. Therefore, this condition had no significant safety consequences for the plant or the health and safety of the public.

Conditions Prior to Event
Unit 1 was in Mode 5, Cold Shutdown
Unit 2 was in Mode 5, Cold Shutdown

Description of Event
On September 12, 1997, it was discovered that current operating procedures for the Residual Heat Removal(RHR) System do not prevent the operation of both RHR pumps when the Reactor Coolant System (RCS)is open to atmosphere. This is contrary to Updated Final Safety Analysis Report (UFSAR) Section 9.3.3 which states, "Only one residual heat removal (RHR) pump will be operated when the reactor coolant system is open to the atmosphere to prevent damaging both pumps in the unlikely event that suction should be lost" and Section 9.3.6.2 which states, "A requirement to have only one RHR pump in operation whenever the RCS is drained to half loop and vented, has been incorporated into applicable operating procedures".

Operating procedures at the time of discovery prevented operation of two RHR pumps when the RCS was drained to half loop. However, operating procedures did allow the operation of two RHR pumps when the RCS is vented to atmosphere prior to draining to half loop.

Cause of Event
The cause of not including all of the UFSAR requirements into the RHR procedure could not be determined. Inadequate understanding of the UFSAR and inadequate safety screenings prevented this issue from being identified sooner.

Analysis of Event
This event was reported on September 12, 1997 via ENS at 1617 hours EDT under 10CFR50.72(b)(2)(iii)(A), (B) and (D) as a condition that potentially could have prevented the fulfillment of the safety function of a structure or system. This LER is therefore submitted in accordance 10CFR50.73(a)(2)(v), as a condition that potentially could have prevented the fulfillment of the safety function of a structure or system. NOTE: In interim LER 315/97-016-00 the reporting information was incorrect. The information as stated above is the correct report time and reportability criteria.

Section 9.3.6.2.b of the UFSAR states that "only one RHR pump will be operated when the Reactor Coolant System (RCS) is open to atmosphere to prevent damaging both pumps in the unlikely event that the suction valve from the RCS should close".

The concern for the potential loss of RHR pumps after the reactor head has been unbolted is documented in NRC Question 212.5 which asked us to, "Describe the consequences of a failure associated with the isolation valves in the suction line from the hot leg to the RHR pumps during normal shutdown cooling after the head has been unbolted. These failures could cause pump damage due to cavitation and loss of core cooling". In our response to this question we committed to lock out power to both suction isolation valves to essentially eliminate any possibility of valve closure during any operational mode when the RCS is open to atmosphere. Additionally we committed to allowing only one RHR pump to operate when the RCS was open to atmosphere to prevent damaging both pumps should valve closure occur.

Our current operating procedures have ensured that only one RHR pump is in operation when the RCS is at half loop. Therefore, the safety consequences of this condition are limited to times when the RCS was vented to atmosphere, but not at yet at half loop conditions.

Analysis of Event (cont'd)

The first commitment made in response to Question 212.5 is met by our plant procedures defeating the interlocks for the RHR suction isolation valves whenever RHR is in service. This has precluded damage to either pump due to inadvertent closure of the RHR suction isolation valves. However, the second commitment was not met since our procedures have allowed the operation of two RHR pumps with the RCS vented to atmosphere with RCS level greater than half loop. If the RCS level is greater than half loop, then the suction lines are completely filled with enough NPSH to preclude the formation of air pockets and enough level exists above the suction source to preclude vortexing. This is not the case at half loop conditions. However, as discussed previously, plant procedural control has protected the pumps in the half loop configuration, ensuring that both pumps will not be damaged.

In addition, if both of the RHR suction isolation valves were to have closed and both pumps were lost, abnormal operating procedures 1/2-OHP 4022.017.001, Loss of RHR Cooling, would have been used to respond in order to mitigate any loss of RHR conditions.

Based on this evaluation, there was no significant safety consequence to the plant or the health and safety of the public posed by allowing the operation of two RHR pumps when the RCS was vented to atmosphere and RCS level was greater than half loop conditions.

Corrective Actions

Procedures 1/2 OHP 4021.017.001, Operation of The Residual Heat Removal System, have been revised to add the UFSAR requirement to allow only one RHR pump to be operated if the RCS is vented to atmosphere.

Procedures 1/2-OHP 4030.STP.008Q and 1/2-OHP 4030.STP.008R have been revised to add a precaution stating that only one RHR pump may be operated with suction aligned to the RCS when the RCS is vented to atmosphere.

Complete and accurate safety screenings are being stressed by the Operations Department Managers. Although the requirements for performance of safety screenings are proceduralized, the general steps to be taken to ensure the quality of those safety screenings were re-emphasized to all Operations procedures writers. These included:

- Computer based word searches are to be used to determine affected section of the FSAR or UFSAR.
- The affected sections should be reviewed using the hard copy of those documents, including all tables, graphs, figures, and flow diagrams.
- Review NRC correspondence and previous safety reviews to ensure that the proposed changes are consistent with the guidance in these documents.
- Review of Technical Specifications (T/S) shall include not only the T/S itself but also the surveillance requirements, the Bases section and the Administrative Section.

The procedure writers were also reminded of how to proceed if it becomes obvious during the screening process that the existing procedure did not satisfy the assumptions in the FSAR or UFSAR, and how to proceed with a proposed change that appears to affect the UFSAR and requires a complete 10CFR50.59 Safety Evaluation.

Corrective Actions (cont'd)

As discussed in the NRC's Confirmatory Action Letter (CAL) to the Cook Nuclear Plant, dated September 19, 1997, we are assessing the problems identified during the recent AE Design Inspection to determine whether these types of problems exist in other safety related systems and whether they affect system operation in the longer term. We will evaluate our programs for improvements to assure these kinds of problems are promptly identified, thoroughly evaluated and resolved. The results of our reviews and assessments, as well as necessary preventive actions will be communicated separately to the NRC.

Failed Component Identification

N/A

Previous Similar Events

315/97-016-00