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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9211100043 DOC.DATE: 92/11/04 NOTARIZED: NO DOCKET #
 FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH.NAME AUTHOR AFFILIATION
 WIEBE,J.S. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 BLIND,A.A. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-011-00:on 920917,identified that Post Accident
 Containment Hydrogen Monitoring Sys operability per license
 commitments could not be assured.Caused by inadequate
 evaluation.Plant modification initiated.W/921104 ltr.

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

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EXTERNAL:	EG&G BRYCE,J.H		2	2		L ST LOBBY WARD		1	1	
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November 4, 1992

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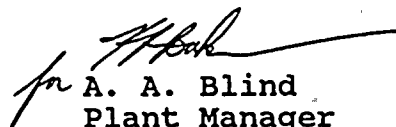
Operating Licenses DPR-58
Docket No. 50-315

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:

92-011-00

Sincerely,


A. A. Blind
Plant Manager

/sb

Attachment

c: D. H. Williams, Jr.
A. B. Davis, Region III
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9211100043 921104
PDR ADOCK 05000315
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5027

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 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.

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 4

TITLE (4) Inoperability of the Post Accident Containment Monitoring System (PACHMS) to Operate per Licensing Commitments

EVENT DATE (5) MONTH DAY YEAR 0 9 1 7 9 2 LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER 2 9 2 0 1 1 0 0 1 1 0 4 9 2 REPORT DATE (7) MONTH DAY YEAR OTHER FACILITIES INVOLVED (8) FACILITY NAMES DOCKET NUMBER(S) D. C. Cook - Unit 2 0 5 0 0 0 3 1 6

OPERATING MODE (9) 6 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) POWER LEVEL (10) 0 0 0 20.402(b) 20.405(c) 60.73(a)(2)(iv) 73.71(b) 20.406(a)(1)(i) 60.36(c)(1) 60.73(a)(2)(v) 73.71(c) 20.405(a)(1)(ii) 60.36(c)(2) 60.73(a)(2)(vi) OTHER (Specify in Abstract below and in Text, NRC Form 366A) 20.406(a)(1)(iii) 60.73(a)(2)(i) 60.73(a)(2)(viii)(A) 20.406(a)(1)(iv) X 60.73(a)(2)(ii) 60.73(a)(2)(viii)(B) 20.406(a)(1)(v) 60.73(a)(2)(iii) 60.73(a)(2)(x)

LICENSEE CONTACT FOR THIS LER (12) NAME Joel S. Wiebe - Safety and Assessment TELEPHONE NUMBER AREA CODE 6 1 1 6 4 6 5 1 - 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) X NO EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

On September 17, 1992, while both units were shutdown, it was identified that the ability of the Post Accident Containment Hydrogen Monitoring System (PACHMS) to operate per licensing commitments could not be assured. PACHMS is required to meet specific design criteria (e.g. seismic) established within Reg. Guide 1.97. Contrary to the above, it was discovered that a support system for PACHMS did not meet the specific Reg. Guide 1.97 criteria.

The PACHM System operates to provide control room indication of hydrogen concentration in the containment following a safety injection. During a system review, it was determined that the PACHM System was supported by the control air system that did not meet the minimum requirements of Reg. Guide 1.97. As a result, in the event control air was lost, the PACHM System would not have been capable of performing its intended function. An independent evaluation of the PACHM System being conducted concurrently with the identification of the control air issue, determined that existing plant operating practices would not have supported operation of the PACHM System within the 30 minute time limit specified in NUREG 0737. The root cause of this condition was determined to be the inadequate evaluation of the Plant modification which installed the PACHM System in 1982.

A plant modification has been initiated, and Plant Emergency Operating Procedures are being enhanced to ensure proper operation of the PACHM System. These activities have been completed on Unit One. Similar changes will be completed prior to Unit Two entering MODE 2 (STARTUP).

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-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.

FACILITY NAME (1) D. C. Cook Nuclear Plant - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5 9 2 - 0 1 1 - 0 0 0 2 OF 0 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

Conditions Prior to Occurrence:

Unit One in Mode 6 (Refueling)

Unit Two in Mode 3 (Hot Standby)

Description of Event:

On September 17, 1992, while both units were shutdown, it was identified that the ability of the Post Accident Containment Hydrogen Monitoring System (PACHMS) (EIIS:IP/MON) to operate per licensing commitments could not be assured. PACHMS is required to meet specific design criteria (e.g. seismic) established within Reg. Guide 1.97. Contrary to the above, it was discovered that a support system for PACHMS did not meet the specific Reg. Guide 1.97 criteria.

The PACHM System operates to provide control room indication of hydrogen concentration in the containment following a safety injection. During a system review, it was determined that the PACHM System was supported by the control air system (EIIS:LD) (required to provide motive force to operate system sample valves) that did not meet the minimum requirements specified in Reg. Guide 1.97. As a result, in the event control air was lost, and without additional operator action, the PACHM System would not have been capable of performing its intended function.

The hydrogen concentration readings of the PACHM System are used to support decisions to operate the distributed igniter system (DIS) (EIIS:BB/BE) and/or the hydrogen recombiners (EIIS:BB/RCB) inside containment. NUREG-0737, Clarification of TMI Action Plan Requirements, requires that a containment hydrogen monitoring system be in continuous operation or be capable of being placed in operation within 30 minutes of an accident condition.

An independent evaluation of the PACHM System being conducted concurrently with the identification of the control air issue, determined that existing plant operating practice would not have supported operation of the PACHM System within the 30 minute time limit specified in NUREG-0737. It was determined that chemistry technicians were expected to report to the Operations Staging Area (OSA, which is an Emergency Plan Facility) following an accident situation. There was a concern that the chemistry technicians could not have assembled at the OSA and then reentered the plant to place the PACHM System in service within the 30 minute timeframe.

Since the inability to operate the PACHM System within 30 minutes (as required by NUREG-0737) was discovered when both Units were shutdown, no immediate compensatory action was required.

Following discussions with the Resident Inspector, it was determined that a Four Hour report should be made, regarding the unavailability of control air to support the PACHM System, in the "spirit of 10 CFR 50.72(b)(2)i." This notification was completed at 1630 hours on October 13, 1992.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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		9 2	0 1 1	0 0	0 3	OF	0 4

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

Cause of Event:

The investigation found documentation between the licensee and the NRC (AEP:NRC:0702, dated July 9, 1982) that indicated the sample valves in question could not function on loss of control air or power. This letter however, was submitted in response to an NRC question regarding NUREG-0737 item II.F.1, "Containment Isolation Dependability." This letter was not referenced in the NRC Safety Evaluation Report (NRC Letter dated June 8, 1983) approving our PACHM System design per Item II.F.1.

Because of the passage of time and the lack of supporting information in the Safety Evaluation Report, it is not possible to determine if the PACHM System was approved with the complete understanding of the system vulnerabilities. In hindsight, it is difficult to accept that the PACHM System requirements were met, considering the reliance on the control air system. As a result, the system design is considered not to meet the design requirements.

Additionally, the review conducted to determine the impact of Plant Emergency Operating Procedures and the Emergency Plan procedures failed to adequately ensure that the PACHM System operation could be established within the required 30 minute timeframe.

It is concluded that the root cause for this condition was an inadequate evaluation of the plant modification that installed the PACHM System in 1982.

Analysis of Event:

This event is reportable pursuant to 10 CFR 50.73(a)(2)(ii)(B) and 10 CFR 50.73(a)(2)(ii)(C), a condition outside the design basis of the Plant and a condition not covered by operating and emergency procedures respectively. The hydrogen concentration readings of the PACHM System are used to support decisions to operate the Distributed Ignition System (igniters) and the Hydrogen Recombiners. The Emergency Operating Procedures (EOPs) in effect at the time of discovery of the PACHM System problems based the decision to place the recombiners and igniters into service upon the containment hydrogen concentration measured by the PACHM System. (The Unit 1 EOPs have since been conservatively revised to place the hydrogen recombiners and igniters into service in the event of a containment phase B isolation signal or upon indication of inadequate core cooling. The Unit 2 procedures will be revised prior to startup.) With the former version of the EOPs, the problems identified with the PACHM System could have resulted in an additional delay in placing the recombiners or igniters in service.

From an analytical standpoint, the hydrogen recombiners are useful for long term hydrogen cleanup. However, as demonstrated in the UFSAR analysis, the recombiners are not needed for at least 6 hours following the accident. It should be noted that there are backup air connections designed into the air supply lines to the PACHM System containment isolation valves. It is therefore judged, that sufficient time would have existed to provide a backup air supply to the PACHM System in order to support decisions regarding the hydrogen recombiners within the 6 hour time frame.

LICENSEE EVENT REPORT (LER)
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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

Analysis of Event (Continued):

The analyses in the UFSAR do not take credit for the igniters and therefore, these analyses are not impacted. For the sake of completeness, it is noted that analyses submitted to the NRC to demonstrate acceptability with regard to 10 CFR 50.44 did take credit for the igniters. However, these analyses assumed hydrogen ignition at 8% concentration. At this concentration, ignition of hydrogen from random sparks or electrical equipment would be expected to occur. Therefore, the presence of the igniters had essentially no effect on the outcome of the analyses, and thus these analyses would not be significantly impacted by a delay in placing the igniters into service. (The analyses referred to have not been approved by the NRC and therefore are not discussed in the UFSAR. Recently, the NRC has asked for confirmatory analyses to be conducted regarding compliance with the requirements of 10 CFR 50.44. This request was made independently of the PACHM System issues described in the LER. The confirmatory analyses are in-progress.)

Additionally, it is noted that the Individual Plant Examination recently submitted for the Cook Nuclear Plant reviewed hydrogen ignition in relation to the containment ultimate pressure capacity. It was concluded that it was unlikely that sufficient hydrogen could accumulate to challenge the containment structure.

In conclusion, while this condition is reportable as a condition outside of the plant design basis and not covered by operating and emergency procedures, it did not have the potential to impact public health and safety.

Corrective Action:

A plant modification has been initiated to supply the PACHM System with a qualified backup air supply. Additionally, Plant Emergency Operating Procedures are being enhanced to ensure timely operation of the Distributed Ignition System and/or the hydrogen recombiners regardless of the status of the PACHM System. Also, procedure enhancements will be made to ensure that the PACHM System is placed inservice within 30 minutes following the receipt of a Safety Injection Signal. The plant modification and the procedure enhancements have been completed on Unit One. Similar modifications and procedure enhancements will be completed prior to Unit Two entering MODE 2 (STARTUP). It is noted that design verification is now required for safety significant design changes, which was not required when the PACHM System was installed. This provides an independent review of the design change scope to ensure that the design is in accordance with applicable requirements.

Failed Component Identification:

There were no failed components associated with this condition.

Previous Similar Events:

There have been no previous similar events.

