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 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME AUTHOR AFFILIATION
 SCHOEPF, P.G. 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 93-001-00: on 930330, discovered that fuel handling exhaust fan charcoal filter bed fire alarm inoperable. Caused by weakness in design change work planning. Mgt will review all work for potential TS impact. W/930429 ltr.

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

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10-4
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Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



April 29, 1993

United States Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852

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:

93-001-00

Sincerely,

A. A. Blind
Plant Manager

/sb

Attachment

c: A. B. Davis, Region III
E. E. Fitzpatrick
P. A. Barrett
R. F. Kroeger
B. Walters - Ft. Wayne
NRC Resident Inspector
W. M. Dean - NRC
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050042

LICENSEE EVENT REPORT (LER)

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 PLANT _ UNIT 1										DOCKET NUMBER (2) 0 5 0 0 0 3 1 5 1 OF 0 5										PAGE (3)			
TITLE (4) Fuel Handling Exhaust Fan Charcoal Filter Bed Fire Alarm Inoperable Due To Moving Alarm to New Annunciator Location																							
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	3	3	0	9	3	9	3	0	0	1	0	0	0	4	2	9	9	3	0 5 0 0 0				
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																					
1		20.402(b)				20.405(c)				60.73(a)(2)(iv)				73.71(b)									
POWER LEVEL (10)		20.406(a)(1)(i)				60.38(c)(1)				60.73(a)(2)(v)				73.71(c)									
1 0 0		20.406(a)(1)(ii)				60.38(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)(ii)				60.73(a)(2)(viii)(A)													
		20.406(a)(1)(iv)				60.73(a)(2)(iii)				60.73(a)(2)(viii)(B)													
		20.406(a)(1)(v)				60.73(a)(2)(iii)				60.73(a)(2)(ix)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME														TELEPHONE NUMBER									
P. G. Schoepf - Project Engineering Superintendent														AREA CODE		6 1 1 6 4 1 6 1 5 1 - 1 5 1 9 1 0 1 1							
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													
A	I B	A N N R	3 3 5	N																			
SUPPLEMENTAL REPORT EXPECTED (14)														EXPECTED SUBMISSION DATE (15)		MONTH		DAY		YEAR			
YES (If yes, complete EXPECTED SUBMISSION DATE)														X NO									

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

On March 30, 1993 new annunciators for the new Dedicated Fire Protection System (RFC-DC-12-3065) were installed in the Unit 1 Control Room. Several existing annunciators were required to be relocated in order to install the new annunciators and human factor the panels. The "Fuel Handling Exhaust Fan Charcoal Filter Fire or Abnormal" annunciator was moved as part of this process to a previously spared annunciator window. The design change planning process did not identify that the annunciator was associated with Technical Specification (TS) 3.3.3.7. Even though the annunciator's electrical leads had been moved within the TS Limiting Condition for Operation (LCO) Action Statement one hour time limit, the new window's logic card was not installed, effectively, leaving the alarm function inoperable. At the subsequent operations turnover, the oncoming shift identified that two annunciator windows, one TS related and one non-TS related, did not light as expected when tested. The operators determined the problem was within the circuitry and placed the plant in the TS LCO Action Statement which requires the stationing of an hourly fire watch patrol for the area associated with the inoperable fire detection system. It was approximately eleven hours from the time the alarm was rendered inoperable until the stationing of the fire watch.

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TEXT CONTINUATION

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

Conditions Prior to Occurrence:

Unit One was in Mode One (Power Operation) at 100% rated thermal power.

Description of Event:

Because of the infiltration of the zebra mussel into the Great Lakes, the Plant determined a need to construct a fire protection system (EIIS/KP) that did not use the water from Lake Michigan. Additionally, it was decided to human factor the fire annunciator panels which would require the moving of several existing annunciators including the "Fuel Handling Exhaust Fan Charcoal Filter Fire or Abnormal" annunciator (EIIS/IB-ANN). This dedicated fire protection system was to be installed under a design change (RFC-DC-12-3065). Due to the size and complexity of the installation, two Project Engineers, including one senior Project Engineer, were assigned to coordinate the installation of the new fire system. During the initial planning phases of the project, a decision was made to break the installation into three phases.

The first phase was the preparation (excavation, trenching, etc.) of the areas needed for the new equipment. The second phase was the installation of the major equipment and the adding of a new annunciator patch panel (EIIS/IB-ANN) to allow the installation of the new annunciators and relocation of existing annunciators. The initial planning called for the existing annunciators to be moved into their new panel locations during phase II. The third phase of the project was the testing and turnover of the dedicated fire system for unrestricted operations.

As phase II approached, the senior Project Engineer was assigned to coordinate the installation of the annunciator patch panel and the movement of the existing annunciators. During the phase II installation, a decision was made not to move all the annunciators, but to wait until phase III to move the remainder of the existing annunciators, when the new annunciators were scheduled to be installed. After the completion of the annunciator work in phase II, it was determined the project had progressed to a point where the senior Project Engineer could be reassigned to other duties. The remaining Project Engineer was assigned the responsibility for the completion of the remainder of phase II and phase III. However, he was unaware that all of the existing annunciators had not been moved, as previously planned, during phase II of the project.

The project entered phase III and proceeded with the testing of the new equipment to support the turnover for unrestricted operations. The Project Engineer wrote job order activities for the installation of the new annunciators. The testing reached the point that required the installation of the new annunciators. This work was to be performed using the

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appropriate design drawings. In addition to adding the new annunciators, the design drawings showed the need to relocate the several existing annunciators. The installation was scheduled to be performed on March 30, 1993. Prior to starting work, the General Supervisor - Design Changes asked the Project Engineer if fire watches would be required for the performance of this work. The Project Engineer, thinking that all the annunciator moves had already been performed and that only new annunciators were being installed, indicated that no fire watches were required.

The installers started moving the existing annunciators and installing the new annunciators at approximately 1200 hours on March 30, 1993, not realizing that one of the annunciators to be moved was Technical Specification (TS) related. Since all of the work could not be completed in one day, the installers informed the control room operators they would return the next day to complete the annunciator work. During the next turnover of control room operators, the oncoming Unit Supervisor, as is normal practice tested the affected annunciator panels. He noted that two annunciators, the "Fuel Handling Exhaust Fan Charcoal Filter Fire or Abnormal" and "Drumming Rooms or Radiation Waste Handling Building Sprinkler Abnormal", did not light when the annunciator panel was tested. The operator investigated to determine if the cause was burned out light bulbs or a problem with the circuitry. The light bulbs were determined to be in good operating order and the problem was in the annunciator circuitry. The operator, realizing this was a TS required alarm, took action as required by the Limiting Condition for Operation (LCO) Action Statement to station a fire watch patrol for the Fuel Handling Exhaust Fan charcoal filter bed (EIIS/VG-ABS). This action was taken at 2300 hours on March 30, 1993.

Cause of Event:

This incident has identified a weakness in the design change work planning and control process. The design change work planning and control process does not provide a formal mechanism to determine and document if the design change work has any TS impact. The maintenance planners perform TS reviews for all corrective maintenance activities, but they do not normally perform this type of review for design change activities. The design change planning process differs from the corrective maintenance process in that the Project Engineer performs the initial planning of the work and forwards this to the maintenance planners. In most instances, the maintenance planner does not have the design drawings to use when reviewing the planning for the work. This leads the planner to rely on the information provided to him by the Project Engineer. This information is not always detailed enough for the maintenance planner to determine if the work has TS impact. In this incident, prior to the work commencing, the scope of the work had been reviewed by several organizations none of which performed a specific review for TS impact.

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Contributing to this incident was the fact that the Project Engineer had not been involved in the annunciator work during the outage and had not been briefed on the decision to defer the relocation of several of the annunciators to phase III of the project. This led the Project Engineer to believe that all the annunciators moves had been previously performed and that the annunciator work during phase III had no TS impact.

Analysis of Event:

TS 3.3.3.7.b requires compensatory action to be taken within one hour of rendering the alarm inoperable. It is estimated that the alarm had been inoperable for approximately eleven hours prior to compensatory action being taken, making this incident reportable under 10CFR50.73.(a)(2)(i)(B), "any operation or condition prohibited by the plant's Technical Specifications:...", guidelines. This event did not have an impact on the health and safety of the public.

Additionally, if an actual fire had occurred, the Fuel Handling Area Exhaust Fans (EIIS/VG-FAN) would have tripped causing the "Fuel Handling Area Exhaust Fans Failure" annunciator (EIIS/IB-ANN) to alarm, and an operator would have been dispatched to the area to determine the cause of the alarm, thus, minimizing the time from the inception of the fire to its detection.

Corrective Action:

As soon as the control room operators recognized the required alarm function for "Fuel Handling Exhaust Fan Charcoal Filter Fire or Abnormal" annunciator was inoperable, a fire watch patrol was stationed in accordance with the TS LCO. Also, on March 31, 1993, the missing logic card was installed and the circuitry tested to ensure it was operating satisfactorily. This returned the alarm circuit to a functional status. The fire watch patrol was maintained until this portion of RFC-DC-12-3065 was released for unrestricted operations on April 5, 1993.

Upon discovery of this problem, the Project Engineering Department performed a review of all on-going and near term work to identify any potential TS impacts not previously identified, and prevent another similar event from occurring.

This incident has identified a weakness in the design change work planning and control process. The design change work planning and control process does not provide a formal mechanism to perform and document a TS impact review. In order to ensure a specific TS review is completed for each design change, the process will be revised to require a specific review of all work for potential TS impact. This revision is scheduled to be completed by June 4, 1993. In the interim, the Project Engineering management will review each design change scheduled for work prior to the revision of the design change procedures to ensure any potential TS impact has been identified.

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Additionally, all Project Engineers will be briefed on this incident. This brief will include a review of Plant Manager Standing Order on Verbal Communication, PMSO.123, emphasizing the need to effectively communicate any changes in work planning to all individuals associated with the design change work. This briefing is scheduled to be completed by May 14, 1993.

Failed Component Identification:

None

Previous Similar Events:

None