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Nuclear Operations

10CFR50.73

June 12, 1996
NRC-96-0055

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Licensee Event Report (LER) No. 96-008

Pursuant to Fermi 2 License Condition 2.C.9 and 10CFR50.73(a)(2)(ii)(B), Detroit Edison is submitting the enclosed LER No. 96-008 regarding the Non-Interruptible Air Supply Room in the Auxiliary Building Basement not fully meeting Appendix R criteria for divisional separation.

The following commitments are being made in this LER:

- Install an engineering design modification to bring this area into compliance.

- Evaluate other areas where safety-related unwrapped cable trays exist where cable trays of both divisions are located. This evaluation will be completed by July 1, 1996.

If you have any questions, please contact Mari Jaworsky, Compliance Engineer, at 313-586-1427.

Sincerely,

Robert McKeon

cc: D. V. Pickett
M. J. Jordan
H. J. Miller
A. Vegel
M. V. Yudasz, Jr.
Region III
Wayne County Emergency
Management Division

IE22
1/1

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Fermi 2	0 5 0 0 0 3 4 1	1 OF 5

TITLE (4) Auxiliary Building Basement Not Fully Meeting 10CFR50, Appendix R Criteria for Divisional Separation

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON	DAY	YR	YR	SEQUENTIAL NUMBER	REVISION NUMBER	MON	DAY	YR	FACILITY NAMES	DOCKET NUMBER (5)
5	13	96	96	- 0 0 8 -	0 0	6	12	96		0 5 0 0 0
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OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)	
1	X	10 CFR 10CFR50.73(a)(2)(ii)(B)
POWER LEVEL (10)	X	OTHER - License Condition 2.C.9
9 6	(Specify in Abstract below and in text, NRC Form 366A)	

LICENSEE CONTACT FOR THIS LER (12)

Mari Jaworsky - Compliance Engineer	TELEPHONE NUMBER AREA CODE	586-1427
	313	

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 (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO				

ABSTRACT (16)

Following a plant housekeeping tour, a concern was raised about the fire wrap in the Auxiliary Building Basement, elevations 551 feet and 562 feet. This prompted a review of the 10CFR50, Appendix R assumptions used for this area. This review which was completed on May 13, 1996 revealed an incorrect assumption used in the Appendix R Fire Hazards Analysis. Further investigation identified a portion of Division 2 cable trays which are not fire-wrapped in their entirety and these trays are located near equipment which can be considered intervening combustibles, i.e., combustible material within 20 feet of redundant shutdown divisions.

Specifically, the assumption was that there is no short term need for Control Center Heating, Ventilation, and Air Conditioning (CCHVAC), and therefore, no immediate need for the Non-Interruptible Air Supply (NIAS) system components located in the Auxiliary Building Basement. A fire in this room that could render both divisions of NIAS inoperable was not considered an impediment to the safe shutdown of the plant. This is based on an assumption developed prior to 1984 that the Control Center would not reach 120 degrees Fahrenheit for 4.3 days and manual action, including restoration of offsite power, could be taken to restore CCHVAC within that time period.

Once it was discovered that there is a design deficiency with respect to fire protection in this area, a one hour fire watch was established. The fire watch was upgraded to a continuous fire watch. A fire watch will continue until an engineering design modification is installed to bring this area into compliance with 10CFR50, Appendix R.

Initial Plant Conditions:

Operational Condition:	1 (Power Operation)
Reactor Power:	96 Percent
Reactor Pressure:	1024 psig
Reactor Temperature:	540 degrees Fahrenheit

Description of the Event:

Following a plant housekeeping tour, a concern was raised about the fire wrap [KP] in Auxiliary Building Basement [NF], elevations 551 feet and 562 feet. During this tour, it was noticed that the fire wrap on a Division 2 conduit [ED][CND] was damaged. This prompted a question which led to further review of the 10CFR50, Appendix R assumptions used for this area. This review, which was completed on May 13, 1996, revealed an incorrect assumption used in the Appendix R Fire Hazards Analysis.

Specifically, the assumption was that there is no short term need, i.e. prior to the 72 hours assumed for restoration of offsite power [FK], for Control Center Heating, Ventilation, and Air Conditioning (CCHVAC) [NA][VI], and therefore, no immediate need for the Non-Interruptible Air Supply (NIAS) system [LE] components located in the Auxiliary Building Basement. NIAS supplies air to operate CCHVAC dampers [VI][BDMP,CDMP]. Therefore, a fire in this room which could render both divisions of NIAS inoperable was not considered an impediment to the safe shutdown of the plant. This is based on an assumption developed prior to 1984 that the Control Center would not reach 120 degrees Fahrenheit for 4.3 days and manual action, including restoration of offsite power, could be taken to restore CCHVAC. In May 1984, a change to the Final Safety Analysis Report (FSAR) was initiated which removed this reference regarding the Control Center remaining below 120 degrees Fahrenheit for 4.3 days. FSAR Amendment 58 which incorporated this change was effective in July 1984.

Even though the 4.3 days had been removed from the FSAR in 1984, the requirement for manual action to cross connect NIAS to the Interruptible Air Supply (IAS) system [LF] remained. The Updated Final Safety Analysis Report (UFSAR) Section 9A.4.2.2 takes credit for operator action to connect to IAS if both NIAS divisions are lost. In case of fire the Control Center must remain below 120 degrees Fahrenheit long enough to restore offsite power and access the fire area to cross connect to IAS. Implicit in this is that the equipment in the Control Center will remain operable up to the time that offsite power is restored, NIAS is cross connected to IAS, and CCHVAC restored.

Both divisions of CCHVAC could be affected by a fire in a portion of the NIAS room since Division 2 NIAS equipment is not adequately separated from Division 1 cable trays [FA][TY] that contain safe shutdown cables.

Further investigation of the affected area identified a portion of Division 2 cable trays which were not fire-wrapped in their entirety as originally planned. These trays were found to be located near equipment which can be considered intervening combustibles, i.e., potentially combustible material located between redundant shutdown divisions.

Therefore, based on the above, this condition is not in compliance with 10CFR50, Appendix R, which is the plant design basis, and is reportable under 10CFR50.73(a)(2)(ii)(B)and License Condition 2.C.9.

Cause of the Event:

There was not adequate cross disciplinary communication regarding an evaluation submitted to the NRC. In 1984, there was an ongoing effort to provide a justification for an alternate shutdown procedure to be in place until a Dedicated Shutdown Panel [JL][PL] was installed during the first refueling outage. A letter outlining this procedure was submitted to the NRC on October 22, 1984 which took credit for manual action to restore CCHVAC in the event of a fire in the Auxiliary Building Basement.

Amendment 57 of the Final Safety Analysis Report (FSAR) contained a statement in Section 9.4.1.3 that the Control Center would remain below 120 degrees Fahrenheit for 4.3 days. In May, 1984 and simultaneous to the effort to provide justification for an alternate shutdown method, a change was initiated which removed this reference regarding the Control Center remaining below 120 degrees Fahrenheit for 4.3 days. This reference to the 4.3 days was removed because a justification for the 4.3 days could not be found. FSAR Amendment 58 which incorporated this change became effective in July, 1984.

It is believed that while the change for FSAR Amendment 58 was being developed and submitted, the individuals in the fire protection group responsible for preparing the letter to justify the alternate shutdown method used the Amendment 57 version of the FSAR. Thus, the 4.3 days which was critical to the justification was available to the individuals preparing this justification.

Currently, the Fermi 2 process requires a review of all outgoing correspondence to the NRC for accuracy and completeness. Furthermore, any change to the Fire Protection Program [KP] requires a review of the impact on the UFSAR. Also, a review of all approved changes against the current UFSAR revision that relate to the section of interest is required.

During the course of the investigation the problem that was found where Division 2 trays were not wrapped entirely as originally planned was due to a change in the original design. The original concept in this room was to wrap these trays the full length. However, the concept was revised late in the construction to reduce the amount of fire wrap being installed. The design was changed to wrap these trays only within 20 feet of the Division 1 circuits. The fire protection consultants and Detroit Edison personnel may not have considered the adjacent equipment as potential intervening combustibles. Had

the Division 2 trays been wrapped entirely, there would be no issue of intervening combustibles in this area.

Analysis of the Event:

The UFSAR Section 9A.4.2.2 considers safe shutdown for a fire affecting the NIAS equipment in the Auxiliary Building Basement to be achieved by using Division 2 with the exception that certain process monitoring functions are provided by the Dedicated Shutdown Panel. It should be noted that the UFSAR Section 9A.4.2.2 takes credit for operator action to connect to IAS if both NIAS divisions are lost. In case of fire, the Control Center must remain below 120 degrees Fahrenheit long enough to restore offsite power and access the fire area to cross connect to IAS. Implicit in this is that the equipment in the Control Center remains operable up to the time that offsite power is restored, NIAS is realigned, and Control Center HVAC restored, i.e., approximately 72 hours.

Although according to a recently performed engineering analysis, the Control Center may not remain below 120 degrees Fahrenheit for 4.3 days, it will remain below that temperature for approximately 38 hours, assuming no compensatory actions are taken. Several compensatory actions are available within that time frame. First the doors to the panel cabinets in the Relay Room [VI][RLY] of the Control Center can be opened and fans used to establish air currents. Second, an Abnormal Operating Procedure for Control Center HVAC System Failure allows for manually opening the Division 2 dampers to enable the restart of CCHVAC utilizing the Emergency Diesel Generators [EK][DG] upon the loss of offsite power, which is assumed for the Appendix R analysis. This procedure can be completed well within the 38 hour time frame. Third, if the fire is extinguished prior to the 38 hour time frame and the loss of offsite power is restored, then manual action can be taken to cross connect IAS to CCHVAC.

Because of the defense in depth philosophy employed by Detroit Edison, the problem that was found where Division 2 trays were not wrapped entirely as originally planned should not pose a safety concern. This is because the design includes a fire detection system [KP][DET] with an alarm [KP][ALM] in the Control Room. Also included is a system of automatic sprinklers [KP][SRNK]. Finally, the fire watch which was established at the discovery of this design deficiency will allow early identification of a fire and provide for the rapid extinguishment of a fire long before it can develop sufficiently enough to damage the exposed circuits. This adds another level to the defense in depth concept already employed.

Therefore, based on the above compensatory actions, the health and safety of the public is not adversely affected by this condition.

Corrective Actions:

Once it was discovered that there is a design deficiency with respect to fire protection in this area, a one hour fire watch was established. The fire watch was upgraded to a continuous fire watch. A fire watch

will continue until an engineering design modification is in place. Various options for an engineering design modification are being evaluated to determine the best solution to bring this area into compliance.

In the interim, a design calculation has determined that the equipment in the Control Center will remain under the design limit of 120 degrees Fahrenheit for approximately 38 hours. An abnormal operating procedure is in place which delineates the steps to be taken to manually open the Division 2 dampers for CCHVAC. These steps can be performed within an hour for the Division 2 dampers. Thus, the Division 2 Control Center ventilation can be restored well within the 38 hours available as determined by the calculation in the event of a fire in the Auxiliary Building Basement where the NIAS equipment is located.

An evaluation of other areas where safety-related unwrapped cable trays exist where cable trays of both divisions are located has been initiated. The purpose of this evaluation is to assure the compliance of these areas with 10CFR50, Appendix R. This evaluation will be completed by July 1, 1996.

Additional Information:

A. Failed Components

None

B. Previous LERs on Similar Problems

None