

NON-PUBLIC?: N
ACCESSION #: 8802220332
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island Unit 2 PAGE: 1 of 5

DOCKET NUMBER: 05000320

TITLE: Failure to Comply With Technical Specification 3.3.3.8 By Not Starting a Firewatch When Auxiliary Building Ventilation is Secured and Fire Detectors Are Inoperable.

EVENT DATE: 01/12/88 LER #: 88-002-00 REPORT DATE: 02/11/88

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION

50.73(a)(2)(i)

LICENSEE CONTACT FOR THIS LER:

NAME: Daniel H. Weimer, TMI-2 Licensing Technical Analyst

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SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At 1330 hours on January 7, 1988, a TMI-2 Control Room Operator (CRO) raised the issue of whether the unit needed to be placed in the Action Statement for Technical Specification 3.3.3.8 when the ventilation was secured for the Control Room. Technical Specification Action Statement for Section 3.3.3.8 requires a one (1) hour firewatch if the primary and alternate fire detection instrumentation is inoperable and restoration of the detectors to an operable status within 14 days. It was discovered that the Control Room alternate fire detection instrumentation is an area mounted instrument and is not rendered inoperable when Control Room ventilation is secured. Thus, the Action Statement for Technical Specification 3.3.3.8 did not apply. The CRO's initial question concerning Technical Specification 3.3.3.8 was applied to all buildings in Unit 2. At 1015 hours on January 12, 1988, it was determined that the Auxiliary Building fire detection instrumentation, both primary and alternate, would be inoperable when the building ventilation was secured. The Auxiliary Building fire detection system utilized duct mounted instrumentation for both primary and alternate detectors. Review of records has shown that on at least one instance in the past, the ventilation has been secured and no firewatch initiated. The potential for this type of non-compliance was identified for the Reactor Building Normal and Emergency Ventilation and Cooling System in 1984, but other systems were not examined. This apparent oversight indicates a lack of thorough review of the problem when it was first

identified. The root cause of this event is personnel error in not correctly identifying the need to place the unit into the Action Statement of 3.3.3.8. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B). All CROs were counseled to ensure that a firewatch is initiated when Auxiliary Building ventilation is secured. Plant procedures are being revised to specify that a firewatch must be initiated under these conditions.

(End of Abstract)

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I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility was in a long-term cold shutdown state; the defueling evolution was in progress. The reactor decay heat was being removed via loss to ambient. Throughout this event there was no effect on the Reactor Coolant System or the core.

II. STATUS OF STRUCTURES, COMPONENTS, OR SYSTEMS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

N/A

III. EVENT DESCRIPTION

On January 7, 1988, at 1330 hours, the Control Room Ventilation and Emergency Air Cleanup System (Code IEEE STD 1984-VI) was taken out of service for maintenance. Two (2) Control Room Supply Fans and associated cooling coils were removed from service and Technical Specification 3.7.7.1.a Action Statement was entered with a seven-day timeclock to restore the fans to service. Thus far, this was considered normal operating procedure; however, the Control Room Operator (CRO) also entered Technical Specification 3.3.3.8 on the status board. The CRO log documents this as due to ventilation duct-mounted smoke detectors being out of service. An hourly firewatch of the 331 ft. elevation of the Control Building (Code IEEE STD 1984-NA) was established with a timeclock of 14 days to return the inoperable smoke detectors to service.

The TMI-2 Operations Manager questioned this action and contacted TMI-2 Licensing for confirmation of entrance in Technical Specification 3.3.3.8 Action Statement. TMI-2 Licensing stated that the Action Statement should be entered if the smoke detectors are rendered inoperable due to loss of fan flow but suggested that he check with the fire protection engineer to verify this operation. A verification

check with the fire protection engineer produced the position that the alternate fire detection instrument (Code IEEE STD 1984-IC) can be taken credit for when it is of the area/surface mounted type. As in this specific instance, Surveillance Procedure 4210-SUR-3680.02, "Fire System Detector Instrument Functional Test," identifies the Control Room Ventilation primary smoke detector as FS-XD-6150 Model DIA-10 (Code IEEE STD 1984-IC) which is duct-mounted type. The alternate instrument is identified as FS-XD-6148-6 Model DIS-/5A (Code IEEE STD 1984-IC) which is a surface-mounted type located near Control Room Panel 5 Area - 331' elevation of Control Building. Since the alternate instrument is of the area/surface mounted smoke detector type, it was unnecessary to enter the Action Statement of Technical Specification 3.3.3.8.

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These activities provoked some thought on the part of the Operations Manager as to whether there were other ventilation systems containing duct-mounted smoke detectors as both primary and alternate instruments. It was an established practice to enter the Fire Detection Instrumentation Action Statement whenever the Reactor Building normal cooling recirculation fans (Code IEEE STD 1984-VA) AH-E-11A through E are all secured. This is because the primary detector is duct-mounted in the common discharge of the fans and so is the alternate detector. The Operation Manager discussed this firewatch requirement with the individual who was then the TMI-2 fire protection engineer to determine if other systems had been evaluated; the response was negative.

The Operations Manager performed a thorough and extensive investigation, verified by the TMI-2 Safety Review Group and Fire Protection Engineering, of ventilation systems with fire detection instruments required per Technical Specification 3.3.3.8. Using Procedure 4210-SUR-3680.02, the listing of system versus primary/alternate smoke detectors was generated. This resulted in identifying the Auxiliary Building ventilation (Code IEEE STD 1984-VF) as having duct-mounted detectors for both primary and alternate instruments. Consequently, whenever the Auxiliary Building Ventilation Exhaust Fans AH-E-8A through D are secured, the Action Statement of Technical Specification 3.3.3.8 should be entered and a firewatch and time clock started for restoration to service. A review of the Unit 2 fire detection system indicates that both primary and alternate fire detectors are duct mounted only for the Reactor Building (Code IEEE STD 1984-NH) and Auxiliary Building (Code IEEE STD 1984-NF). Other areas have alternate detectors which function during periods of ventilation shutdown.

This event report was initiated on January 12, 1988, at 1015 hours to document the discovery of a possible non-compliance with the Action Statement of 3.3.3.8 for the Auxiliary Building Ventilation. One such case has been identified as occurring on February 14, 1984, via IER 84-009 when Auxiliary Building Ventilation was secured for approximately four (4) hours. There was no firewatch documented in the IER to cover the inoperable duct smoke detectors. This event is considered a 30-day reportable event pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B) since an operation or condition prohibited by the Plant's Technical Specification occurred.

IV. ROOT CAUSE OF THE EVENT

The event description identifies a non-compliance with a Technical Specification Limiting Condition for Operation requirement to maintain a minimum coverage by fire detection instrumentation operable in each fire detection zone. The Technical Specification Action Statement of Section 3.3.3.8 requires a one (1) hour firewatch if detectors are inoperable and restoration to operable status within 14 days. In order for fire detectors

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to be considered inoperable, both the "Required Instruments" and the "Alternate Instruments" as defined by Table 4.3-11 of the Recovery Operations Plan would have to be out of service. The Auxiliary Building Heating and Ventilation System utilized duct-mounted detectors for both the primary and alternate instruments. Duct-mounted type detectors are connected to the duct by sensing lines and rely on air movement within the ductwork to be considered operable. Consequently, whenever the system is shutdown, the Action Statement and time clock should be entered. A potential for non-compliance was identified for the Reactor Building Normal and Emergency Ventilation and Cooling in mid-1984 but a follow-up inquiry for other systems was not initiated. This oversight can, thus, be attributed to a lack of thorough review at the time of discovery of the Reactor Building ventilation concern. The root cause of this particular event was personnel error in not correctly identifying the need to place the unit into the Action Statement of 3.3.3.8. A contributing factor is the existence of separate Technical Specifications Action Statements for building ventilation and fire detection with no obvious ties between the two.

V. CORRECTIVE ACTIONS

Immediate - The Operations Manager informed all shift crews via night order book that it is a requirement to enter the Action Statement of Technical Specification 3.3.3.8 and start an hourly firewatch whenever the Auxiliary Building Exhaust Fans are secured.

Long-Term - Procedure Change Requests (PCRs) will be initiated for the operating procedure for the Auxiliary Building Ventilation and the shift and daily checks. The administrative limits and precautions section will reflect that when all exhaust fans are secured, a firewatch must be established and Action Statement of 3.3.3.8 entered. The shift and daily checks will have an event-related check associated with the Auxiliary Building Ventilation and Reactor Building Ventilation to start an hourly firewatch if the ventilation is secured. The relevant procedures are 4210-OPS-3829.01, "Auxiliary Building Heating and Ventilation," and 4211-SUR-3061.01, "Shift and Daily Checks," respectively.

VI. COMPONENT FAILURE DATA

N/A

VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

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VIII. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

An assessment of the safety consequences and implications of this event were evaluated. Fire detection instrumentation operability is defined under Technical Specification Section 3/4.3.3.8 as follows:

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the Fire Detection Instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early states. Prompt detection of fires will reduce the potential for damage to Safety Related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the Fire Detection Instrumentation

is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is returned to service.

This requirement is met by ensuring a minimum number of detectors in each area or fire zone are functional. These are defined in TMI-2 Recovery Operations Plan Table 4.3-11 which requires two (2) operable smoke detectors or two (2) alternate smoke detectors. Surveillance Procedure 4210-SUR-3680.02 identifies these detectors for Zone 3 of the 305' elevation of the Auxiliary Building and Zone 4C of the 328' elevation. These duct-mounted smoke detectors are primary FS-XD-6085/6086 and alternate FS-XD-6081/6082. Since the Auxiliary Building is divided into numerous separate cubicles, the selection of duct-mounted detectors for Technical Specification instruments simplifies the installation requirements.

A review of the Fire Service Detection Instrumentation List for the Auxiliary Building identified seven (7) duct-mounted type which require air velocity to function. These are backed up by 77 local area detectors. All detectors function to provide local and remote alarms in the Control Room as well as interlock functions. Even though the designated Technical Specification duct type smoke detectors were not operable due to fans being secured, there was more than adequate fire detection coverage provided by local area smoke detectors. Thus, this event did not jeopardize the safe shutdown condition of the plant and did not present an undue risk to the health and safety of the public.

ATTACHMENT # 1 TO ANO # 8802220332 PAGE: 1 of 1

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February 11, 1988
4410-88-L-0018/0349P

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sirs:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 88-02

Attached is Licensee Event Report 88-02 concerning the failure to perform a firewatch when less than the minimum fire detection instrumentation is operable. This event was determined to be reportable on January 12, 1988.

This event is considered reportable pursuant to Title 10 of the Code of Federal Regulations, Section 50.73(a)(2)(i)(B).

Sincerely,

/s/ F R Standerfer
F. R. Standerfer
Director, TMI-2

DHW/emf

Attachment

cc: TMI-1, NRC Resident Inspector - R. J. Conte
Regional Administrator, Region 1 - W. T. Russell
Director, TMI-2 Cleanup Project Directorate, NRC - Dr. W. D. Travers

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