

NON-PUBLIC?: N  
ACCESSION #: 8703030318  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island Unit 2 PAGE: 1 of 6

DOCKET NUMBER: 05000320

TITLE: Failure to Comply with Tech. Spec. 3.7.7.1 due to inoperability of  
both Control Room Bypass Fans  
EVENT DATE: 01/23/87 LER #: 87-001-00 REPORT DATE: 02/25/87

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION  
50.73(a)(2)(i), 50.73(a)(2)(vii)

LICENSEE CONTACT FOR THIS LER:

NAME: Russell D. Wells, TMI-2 Licensing Engineer TELEPHONE #: 717-948-8693

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At 0850 hours on January 23, 1987, operators commenced the surveillance of the Control Room (CR) Bypass Charcoal Filter Deluge System per Procedure 4210-SUR-3811.04, "Fire System Deluge/Sprinkler System Functional Test." This procedure requires placing the interlock switch for the CR Bypass Fans AH-E-4A/B, which is located at control panel 709, in the "Bypass" mode prior to actuating the heat detector for the deluge system. This procedure also requires that the deluge system be returned to service per Procedure 4210-OPS-3810.01. At 1025 hours on January 23, 1987, operators completed the surveillance of the deluge system and initiated the performance of each step. However, at 0001 hours on January 26, 1987, operators were initially unable to start AH-E-4A/B during the performance of Procedure 4210-SUR-3826.01, "Control Room Ventilation System." However, operators were able to start AH-E-4A/B by pressing the reset button at panel 709. This indicated that the heat detector for the deluge system was actuated while the CR Bypass Fans were in the "Interlock" mode. Additionally, it was determined that the referenced operating procedure was not used when performing the surveillance of the deluge system. Furthermore, there were no scheduled activities performed on either the deluge system or AH-E-4A/B during this event. Thus, it can be reasonably postulated that the root cause of this event was personnel error due to the failure to properly perform the deluge system surveillance. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) and 50.73(a)(2)(vii)(D). The operators who performed this surveillance were counseled. Procedure 4210-SUR-3811.04 is being revised to

include the specific return-to service criteria and to require operation of AH-E-4A/B following the surveillance of the deluge system.

(End of Abstract)

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## I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility is in a long-term cold shutdown state; the defueling evolution is in progress. The reactor decay heat was being removed via loss to ambient. Throughout this event there was no affect 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

At 0850 hours on Friday, January 23, 1987, operator personnel commenced the once-per-18 month surveillance of the deluge system for the Control Room (CR) Bypass Charcoal Filter Unit AH-F-5 (IEEE 805 Code-VI) pursuant to Procedure 4210-SUR-3811.04, "Fire System Deluge/Sprinkler System Functional Test." This surveillance verifies the operability of the required deluge/sprinkler system by actuating the heat detectors, deluge, valve(s), and interlocks associated with the required system.

The above referenced procedure required, in this case, placing the interlocks for the CR Bypass Fans AH-E-4A/B (IEEE 803A Code-FAN) in the bypass mode prior to actuating the heat detector for the deluge system. This action is performed at the local control panel (i.e., panel 709) by turning the handswitch from "Interlock" to "Bypass." The bypass mode overrides all the interlocks associated with the local fire detection panel allowing the CR Bypass Fans to operate after the actuation of the heat detector. (NOTE: If the heat detector is actuated while the CR Bypass Fans are in the interlock mode, the "reset" button at panel 709 has to be pressed in order to restart the CR Bypass Fans).

After completing the surveillance of the deluge system, Section 7.1.1.14 of Procedure 4210-SUR-3811.04 requires the deluge system to be returned to service per Operating Procedure 4210-OPS-3810.01, "Fire Protection System." Section 6.4, "Special or Infrequent Operators of

the Deluge System," of this operating procedure applies, in this case, though not specifically referenced in the surveillance procedure. This section requires operators, in the event of a fire, to place AH-E-4A/B in the "Bypass" mode and press the reset button. After the fire is extinguished, the referenced section directs return of the CR Bypass Fans to the "Interlock" mode. Pressing the reset button ensures that any interlock actuations have been cleared prior to returning AH-E-4A/B to the "Interlock" mode.

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At 1025 hours on January 23, 1987, the operators completed the surveillance of the CR Bypass Charcoal Filter Deluge System portion of Procedure 4210-SUR-3811.04 and initiated each step, including the return-to-service criteria, as having been performed satisfactorily.

However, at 0001 hours on Monday, January 26, 1987, operators were initially unable to start CR Bypass Fans AH-E-4A/B from the Control Room during the performance of Surveillance Procedure 4210-SUR-3826.01, "Control Room Ventilation System." Subsequently, by pressing the reset button at panel 709, operators were able to start AH-E-4A/B. Procedure 4210-SUR-3826.01 was completed at 0120 hours on January 26, 1987, verifying the operability of the CR Bypass Fans.

There were no additional surveillance or maintenance activities performed on either the deluge system or the CR Bypass Fans between the event date (i.e., January 23, 1987) and the discovery date of this event (i.e., January 26, 1987). Thus, it can be reasonably postulated that the CR Bypass Fans were inoperable in violation of the requirements of Technical Specifications 3.7.7.1, "Control Room Emergency Air Cleanup System," during this period. The referenced Technical Specification requires both CR Bypass Fans to be operable and there is no action statement associated with this condition. Thus, the inoperability of both CR Bypass Fans automatically resulted in a condition prohibited by the plant's Technical Specification and is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B). Additionally, because this event resulted in Train "A" (i.e., CR Bypass Fan AH-E-4A) and Train "B" (i.e., CR Bypass Fan AH-E-4B) of the same system to become inoperable, this event is also reportable pursuant to 10 CFR 50.73(a)(2)(vii)(D).

The event date of this LER is January 23, 1987. The discovery date of this event is January 26, 1987. Thus, the due date of this event report is February 25, 1987 (i.e., 30 days from the discovery date).

#### IV. ROOT CAUSE OF THE EVENT

The most probable root cause of this event was personnel error due to the improper performance of the surveillance procedure for the CR Bypass Charcoal Filter Deluge System (i.e., 4210-SUR-3811.04). This determination is based on the following reasoning:

In order to start CR Bypass Fans AH-E-4A/B, operators had to clear the interlock functions by pressing the reset button at the local control panel. Evidently, the heat detector for the CR Bypass Charcoal Filter Deluge System was actuated while the CR Bypass Fans were in the "Interlock" mode. If the fans had been placed in the "Bypass" mode prior to actuating the heat detector, as required by the aforementioned surveillance procedure, and subsequently returned to the "Interlock" mode, operators should have been able to start AH-E-4A/B from the Control Room.

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Based on interviews with the operators who performed the surveillance of the deluge system, Procedure 4210-OPS-3810.01, "Fire Protection System" was not utilized for performing the return-to-service criteria as required by 4210-SUR-3811.04. As previously stated in the event description, the applicable section of 4210-OPS-3810.01 requires the operator to sequentially place the CR Bypass Fans in the "Bypass" mode, press the reset button, and then return the fans to the "Interlock" mode. Following, these steps in the correct sequence should have precluded the occurrence of this event.

There are no records of any additional surveillances or maintenance activities having been performed on either the CR Bypass Filter Deluge System or the CR Bypass Fans between the event date of the LER (i.e., January 23, 1987) and the discovery date (i.e., January 26, 1987). Furthermore, any unscheduled activation of the deluge system would have resulted in an alarm annunciation in the Control Room.

A contributing cause of this event was the failure to identify the specific return-to-service requirements in Procedure 4210-SUR-3811.04. Instead, this surveillance procedure states "...return the deluge system as per (4210-OPS-3810.01)." The referenced operating procedure is bulky (i.e., 226 pages) and the section for returning the deluge system to service is not referenced in 4210-SUR-3811.04. This event may have been precluded if the specific actions for returning the deluge s

system to service had been identified in 4210-SUR-3811.04.

## V. CORRECTIVE ACTIONS

Immediate - Following the discovery of this event, CR Bypass Fans AH-E-4A/B were started at local control panel 709. The fans were verified to be operable at 0120 hours on January 26, 1987, via the performance of Procedure 4210-SUR-3826.01, "Control Room Ventilation System." The operator personnel who performed the surveillance of the CR Bypass Filter Deluge System were counseled on the importance of the attention to detail in the performance of surveillance testing of Technical Specification required systems.

Long-Term - Procedure 4210-SUR-381

1.04, "Fire System Deluge/Sprinkler System Functional Test," is being revised to specifically identify the required actions for returning the CR Bypass Filter Unit Deluge System to service following the completion of the surveillance. The CR Bypass Fans are the only Technical Specification required fans which are normally operated in the "Standby" condition. Thus, the above referenced surveillance procedure is being revised to additionally require operators to start these fans following the completion of the deluge system surveillance. This will allow operators to immediately detect any abnormalities in the CR Bypass Fans as a result of either personnel or mechanical error.

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## VI. COMPONENT FAILURE DATA

N/A

## VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

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

The CR Bypass Fans have interlocks designed to actuate in the event of a fire, high radiation signal, or introduction of chlorine gas either in the Plant Air Intake Tunnel or the Control Building Air Intake. In the event of a fire, the required damper will automatically close and the interlocks will prevent the bypass fans from being started in the Control Room in order to minimize the possibility of introducing smoke into the Control Room. In the event of a high radiation signal or detection of chlorine gas, the required dampers automatically close and the CR Bypass Fans are automatical

ly activated in order to place the Control Room Ventilation System in the 100% recirculation mode. Additionally, there are indicators in the Control Room to alert operators in the event of a fire, high radiation signal, or chlorine gas release.

Should a fire have occurred during the timeframe of this event (i.e., approximately 1025 hours on January 23, 1987, to 0001 hours on January 26, 1987), the CR Bypass Fans were already in their interlock position (i.e., shutdown), indicators in the Control Room would have alerted the operators to the presence of a fire, and operators would have taken appropriate actions to detect and combat the fire.

However, if either a radiological or chlorine gas release had occurred during the timeframe of this event, the CR Bypass Fans would not have activated automatically as designed. In the event of a chlorine gas release, the Control Room Supply Air Damper is designed to close in order to isolate the Control Room. In either case, operators would have been alerted by the appropriate indicators in the Control Room. Furthermore, if either a radiological or chlorine gas release had occurred in the Control Room, sufficient respiratory equipment would have been available such that operators would most likely have been able to continue monitoring plant conditions until the fans were started from the local control panel.

In the event that the magnitude of either a radiological or chlorine gas release would have necessitated the evacuation of the TMI-2 Control Room, the safe shutdown condition of the plant would not have been jeopardized. Due to the unique condition of TMI-2, there are no actions that are required to be taken from the TMI-2 Control Room to

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maintain TMI-2 in a safe shutdown condition (reference GPU Nuclear letters 4410-86-L-0033 dated February 26, 1986, and 4410-86-L-0081 dated May 20, 1986). This condition was recognized and accepted by the NRC in their letter of February 9, 1987, which granted TMI-2 a partial exemption from the requirement of 10 CFR 50, Appendix A, General Design Criterion 19, "Control Room."

Therefore, based on the above evaluation, this event did not present an undue risk to the health and safety of the public.

ATTACHMENT # 1 TO ANO # 8703030318

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GPU NUCLEAR

GPU Nuclear Corporation

Post Office Box 480  
Route 441 South  
Middletown, Pennsylvania 17057-0191  
717 944-7621  
TELEX 84-2386  
Writer's Direct Dial Number:

(717) 948-8461

4410-87-L-0027  
Document ID 0162P

February 25, 1987  
US Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Dear Sir:

Three Mile Island Nuclear  
Station, Unit 2 (TMI-2) Operating License No. DPR-73 Docket No.  
50-320 Licensee Event  
Report 87-01

Attached is Licensee Event Report 87-01 concerning the inoperability of both Control Room Bypass Fans. This event was determined to be reportable on January 26, 1987.

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

Sincerely,

/s/ F. R. Standerfer  
F. R. Standerfer  
Director, TMI-2  
FRS/RDW/eml

Attachments

cc: Regional Administrator - Region 1, District  
r. T. E. Murley Director - TMI-2 Cleanup Project Directorate, Dr. W. D. Travers  
GPU Nuclear Corporation is a subsidiary of

f the General Public Utilities Corporation

\*\*\* END OF DOCUMENT \*\*\*

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