NON-PUBLIC?: N
ACCESSION #: 8611040077
LICENSEE EVENT REPORT (LER)

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

DOCKET NUMBER: 05000320

TITLE: Performance of a Reactor Building Double Door Entry With The Required Air Particulate Monitor Inoperable
EVENT DATE: 09/30/86 LER #: 86-010-00 REPORT DATE: 10/29/86

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

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:
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COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: IL COMPONENT: DET MANUFACTURER: L010
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On September 30, 1986, at 0628 hours both Reactor Building (RB) equipment hatch doors were open per TMI-2 Procedure 4210-OPS-3240.01, "Reactor Building Entry." TMI-2 Technical Specification (Tech. Spec.) Limiting Condition for Operation (LCO) 3.3.3.1 requires an AMS-3 (a Eberline air particulate monitor) to be operable when both RB equipment hatch doors are open. At approximately 0715, a Radiological Controls Technician (Rad Con Tech) discovered that the AMS-3 at the RB equipment hatch was exhibiting a failure light. Investigation showed that the AMS-3 detector had failed at approximately 2100 hours on September 29, 1986. Thus, for approximately 45 minutes (0628 to 0715) both RB equipment hatch doors were open without the required AMS-3 being fully operable. The cause of this event was personnel error due to poor communication between the RB Entry Coordinator and the Rad Con Techs present at the RB equipment

hatch. The immediate corrective action included closing one equipment hatch door in compliance with the Tech. Spec. Action Statement. The AMS-3 filter (the AMS-3 pump continued to operate during the event) and personnel breathing zone apparatus worn by personnel in the equipment hatch area were analyzed and the airborne particulate activity was found to be at or below normal levels. A smear survey of the area outside the RB equipment hatch identified three contaminated spots which were attributed to the transfer of equipment in order to close one equipment hatch door. Procedure 4210-OPS-3240.01 will be revised to ensure that the operability of the AMS-3 is verified prior to opening both RB equipment hatch doors.

END OF ABSTRACT

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 September 30, 1986 at 0628 hours, both Reactor Building (RB) equipment hatch doors were open per TMI-2 Procedure 4210-OPS-3240.01, "Reactor Building Entry." TMI-2 Technical Specification (Tech. Spec.) Limiting Condition for Operation (LCO) 3.3.3.1 requires the radiation monitors listed in Table 4.3-3 of the Recovery Operations Plan (ROP) to be operable. Table 4.3-3 requires an AMS-3 (a Eberline air particulate monitor, IEEE Code-IL) to be operable when both RB equipment hatch doors are open. At approximately 0715 hours, a Radiological Controls Technician (Rad Con Tech) discovered that the AMS-3 at the RB equipment hatch was exhibiting a failure light. Investigation showed that the AMS-3 detector (IEEE Code-DET) had failed at approximately 2100 hours on September 29, 1986 as indicated by the stripchart reading of zero counts per minute. Thus, for approximately 45 minutes (0628 to 0715) both RB equipment hatch

doors were open with the required AMS-3 inoperable. This condition represented a non-compliance with Tech. Spec. LCO 3.3.3.1 and, therefore, is reportable per 10 CFR 50.73(a)(2)(i)(B) due to the existence of a condition prohibited by the Plant's Tech. Specs.

IV. ROOT CAUSE OF THE EVENT

The root cause of this event was personnel error (i.e., poor communication between the RB Entry Coordinator and the two Rad Con Techs that were present at the RB equipment hatch). Prior to opening the double doors, the RB Entry Coordinator contacted the Rad Con Tech to verify that the entry could proceed. He did not specifically address the operability of the AMS-3. It is standard practice for the Rad Con Tech providing coverage for the entry to verify operability of the AMS-3. However, in this event, the Rad Con Techs were called to the RB equipment hatch area approximately fifteen (15) minutes earlier to survey equipment and were not aware that they were providing coverage for the double door entry. As a result, the operability of the AMS-3 was not verified.

Procedure 4210-OPS-3240.01 contains the following three (3) references regarding the opening of both RB equipment hatch doors at the same time.

Section 5.8 Prerequisite

"Prior to opening both equipment hatchdoors simultaneously, the R.B. Equipment Hatch AMS must be operable. Verify with Radiological Controls that the daily source check surveillance was completed satisfactorily within the last 24 hours."

Section 6.5 Caution #7

"Both doors of Airlock No. 1 may not be opened simultaneously unless the R.B. Equipment Hatch AMS is operable and the daily source check surveillance is completed satisfactorily within the last 24 hours. Should the R.B. Equipment Hatch AMS fail while both equipment hatch doors open immediately close at least one door."

Section 6.5.5

"Ensure that tritium and alarming air particulate radioactivity samplers are set up to monitor releases to the environment and are operating in the immediate vicinity of the airlock."

The intent of the above procedural steps are to ensure that the AMS-3 is operable at the time both doors are open and to satisfy the daily surveillance requirement of ROP Table 4.3-3 (i.e., a channel check once every 24 hours). However, investigation of this event revealed that the RB Entry Coordinators have not been directly addressing the operability of the AMS-3. They have relied upon the initiative of the Rad Con Tech present at the RB equipment hatch area to verify the operability of the AMS-3 prior to giving approval to open both doors.

The AMS-3 failure was caused by a faulty detector. The detector developed an internal electrical short circuit which caused the instrument to fail.

V. CORRECTIVE ACTIONS

Immediate

o The Tech. Spec. LCO Action Statement was entered as soon as the AMS-3 was discovered inoperable. Immediate action was taken to close one equipment hatch door in compliance with the action statement.

o TMI-2 Procedure 4220-IMP-3032.01, "General Troubleshooting" was implemented and the faulty detector was replaced. The AMS-3 was declared operable at 1040 on September 30, 1986, after TMI-2 Surveillance Procedure 9200-SUR-3661.03, "Eberline Beta Air Monitor (Model AMS-3) Channel Functional Test and Operational check RB Purge Sampler, RB Equipment Doors AMS-3 and CACE Vent Monitor" was satisfactorily completed.

o The AMS-3 filter was analyzed (the AMS-3 pump continued to operate during the event) and the airborne particulate activity was found to be normal.

o Breathing Zone Apparatus (BZA) from personnel in the RB equipment hatch area were analyzed and the airborne particulate activity was found to be normal.

o A radiological smear survey of the Containment Airlock Control Envelope (CACE) was performed. Three (3) contaminated spots in front of the platform to the RB equipment hatch were identified with levels of 5000 cpm, 3000 cpm and 2000 cpm. Radiological Controls determined this contamination to be the result of the transfer of roller beds out of the RB in order to close one equipment hatch door.

Long-Term

RB Entry Coordinators have been counseled on the importance of precise communication in regards to procedural requirements. In addition, Procedure 4210-OPS-3240.01 will be revised to ensure that the operability of the AMS-3 is verified prior to opening both RB equipment hatch doors.

VI. COMPONENT FAILURE DATA

Detector - LNO, Incorporated Pan Cake Tube, Model 7311-8767

Air Particulate Monitor - Eberline, Model AMS-3, Serial No. 241

VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES
N/A

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

The purpose of the AMS-3 is to ensure that 1) airborne radioactivity levels are continually measured in the area served by the monitor and 2) an alarm or automatic action is initiated if the level trip setpoint is exceeded. In this event, the AMS-3 alarm and stripchart were inoperable. Therefore, the personnel in the immediate vicinity of the RB equipment hatch would not have been warned of an increase in airborne activity. However, as mentioned in the corrective action section, the AMS-3 filter and BZA's from personnel in the vicinity of the RB equipment hatch were analyzed and the airborne particulate activity was found to be at or below normal levels. Thus, it may be concluded that the airborne activity did not increase during the period the AMS-3 was inoperable. Therefore, this event had no impact on the health

and safety of the public.

ATTACHMENT 1 TO 8611040077 PAGE 1 OF 1

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October 29, 1986

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 86-10

Attached is Licensee Event Report 86-10 concerning the conduct of a Reactor Building equipment hatch double-door entry on September 30, 1986, during which the required air particulate monitor was inoperable.

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

Sincerely,

F. R. Standerfer
Vice President/Director, TMI-2

FRS/CJD/eml

Attachments

cc: Regional Administrator - Office of I & E, Dr. T. E. Murley
Director - TMI-2 Cleanup Project Directorate, Dr. W. D. Travers

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