

ACCESSION #: 9807100330

NON-PUBLIC?: N

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island, Unit 2 PAGE: 1 OF 5

DOCKET NUMBER: 05000320

TITLE: FLOOD BARRIERS BREACHED BETWEEN TURBINE BUILDING AND  
CONTROL BUILDING AREA DUE TO INADEQUATE FIELD WORK

DOCUMENTS

EVENT DATE: 06/04/98 LER #: 98-001-0 REPORT DATE: 07/02/98

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)(ii)

LICENSEE CONTACT FOR THIS LER:

NAME: Adam Miller, TMI Licensing Engineer TELEPHONE: (717) 948-8128

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On June 4, 1998 at about 4:00 PM several pipes penetrating the wall between the Turbine Building basement and the Control Building Area were found to be open on both sides of the wall. This is contrary to PDMS SAR section 7.1.4.2.f, which states that all openings that are potential leak paths into the Control Building Area are sealed. Between June 16, 1998 and June 19, 1998, work crews inspected the affected wall and repaired all

identified openings with seals capable of withstanding the head of water of the maximum probable flood elevation of 311 feet. The root cause of this event was that the work planning process for dismantlement work failed to include adequate controls that would ensure that requirements of the PDMS SAR are reviewed and incorporated into work implementing documents prior to release for fieldwork.

The methods for control of dismantlement work will be re-evaluated. Those methods will be modified as necessary to assure that the requirements of the PDMS SAR are reviewed and applicable requirements are incorporated into work control documents prior to their release for fieldwork.

There were no adverse safety consequences from this event, and the event did not affect the health and safety of the public.

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#### I. Plant Operating Conditions before Event:

TMI-2 was in Post Defueling Monitored Storage (PDMS).

#### II. Status of Structures, Components, or Systems that were Inoperable at the Start of the Event and, that Contributed to the Event:

None.

#### III. Background:

Three Mile Island Unit 2 is in Post Defueling Monitored Storage. PDMS is defined by Technical Specification 1.2 as "that condition where TMI-2 defueling has been completed, the core debris removed from the reactor during the cleanup period has been shipped off-site and the facility has been placed in a stable, safe, and secure condition." Section 7.1.4 of the PDMS SAR discusses flood protection and states in part in 7.1.4.2.f that "All openings that are potential leak paths (e.g., ducts, pipes, conduits,cable trays) are sealed."

Dismantlement of deactivated PDMS systems was in progress as allowed by the PDMS Safety Analysis Report (PDMS SAR). Dismantlement work requests are prepared by the dismantlement project engineer/manager and forwarded to the Logistical Support Department. An "area approach" has been in use for about four years in which work orders are very broad in scope and cover large areas of the plant rather than individual systems or components.

The Logistical Support Department prepares and issues a work package based on the work request and any additional engineering input that the planner has specifically requested.

#### IV. Event Description

On June 4, 1998, the PDMS Manager was inspecting areas of the facility and noted several pipe penetrations through the North wall of the Turbine Building basement. This wall [SEAL]\*\_ / is a flood control barrier between the Turbine Building and the Control Building Area and is designed to prevent the free flow of water from a maximum probable flood of 31 1.0 feet into the Control Building Area.

Dismantlement work had been in progress in this area since mid 1997 to remove deactivated system piping from these areas. In several instances, the pipe or conduit had been cut off on both sides of the wall leaving an open pipe through the wall and could have allowed free flow of floodwaters into the Control Building Area. The scope of flood barrier openings included about 15 instrument tubes and 12 process pipes with diameters ranging from 1 to 4 inches. Corrective Action Process (CAP) form

T1998-0437 was issued to document this condition as being outside the analyzed basis for Post Defueling Monitored Storage. In this case, the work control documents failed to address flood criteria. Further, the failure to address these considerations was not identified in the technical or safety reviews of the job package.

V. Component Data:

Not Applicable

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VI. Identification of Root Cause:

The root cause was that the work planning process for dismantlement work failed to include adequate controls that would ensure that requirements of the PDMS SAR are reviewed and incorporated into work implementing documents prior to release for fieldwork.

VII. Assessment of Safety Consequences:

"While in PDMS, the flood control barriers serve the purpose of preventing the spread of radioactive contamination from inside of the buildings.

The breaching of flood control barriers in this event had no safety consequences since no significant flooding occurred during the period in which they were breached.

Had sufficient flooding of the Susquehanna River occurred to bring the water level above the top of the protective dike around the island, water intrusion into the Turbine Building would have occurred. The floodwater would have flowed from the Turbine Building through the open penetrations

into the Control Building Area. From there it could pass into other buildings which contain radioactively contaminated areas. (It is noted that the Reactor Building, which contains the highest levels of contamination, would not be affected by this event). During the flooded condition there would be little driving force to spread the contamination back out through the penetrations in the flood control barriers to the environment. However it is likely that as the flood level abated, there would be some flow of water back out through the penetrations to the Turbine Building and then to the environment. This condition has not been analyzed, but it is expected that a detailed analysis would show that the release of contamination would be small because of solubility, distance, and motive force considerations.

The potential safety impact on Three Mile Island Unit 1 was also evaluated. If flooding had occurred, the flow path available for water to enter Unit 1 from Unit 2 is through a door from the Unit 2 Fuel Handling Building to the shared Fuel Handling Building Truck Bay. This opening could have been protected by the installation of a flood barrier. That barrier was available for installation and was in good working condition. Therefore, this event had no potential safety significance to Three Mile Island Unit 1.

#### VIII. Previous Events of Similar Nature:

No previous events of a similar nature were identified.

## IX. Immediate Corrective Actions Taken

On June 12, 1998, the dismantlement project engineer and the station flood control system engineer performed a walk-down of the affected area to determine the nature and extent of the problem. Several open pipes and conduits were found where the pipe or conduit had been cut off on both sides of the wall. The pipe section penetrating through the wall had been left in place providing a potential flow path for the flow of floodwater.

Work began immediately to reseal the openings. By June 19, 1998, all identified penetrations had been sealed using materials capable of withstanding the hydrostatic head of flood water to an elevation of 311.0 feet (the maximum probable flood level specified in the PDMS SAR).

Based on a post repair walk-down of the area, all openings that are potential leak paths have been verified to be sealed.

No further dismantlement activity which could affect flood barrier penetrations will take place until this LER has been reviewed by all personnel involved with preparation, review, and implementation of dismantlement work implementing documents.

Dismantlement activities that will be performed prior to the completion of the evaluation of control of dismantlement work (corrective action X. I below) will be reviewed by the TMI-2 Dismantlement Project Manager to ensure compliance with the PDMS SAR.

## X. Action Planned to Prevent Recurrence:

- 1) The methods for control of dismantlement work will be re-evaluated.

Those methods will be modified a necessary to assure that the requirements of the PDMS SAR are reviewed and applicable requirements are incorporated into work control documents prior to their release for fieldwork.

2) This LER will be reviewed with all personnel involved with preparation, review, and implementation of dismantlement work implementing documents. This review will assure a heightened awareness of the potential to impact PDMS active systems while performing dismantlement of deactivated systems.

3) The method of lay-up of PDMS deactivated systems will be reviewed to determine the potential for connection of these systems to the outside environment.

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4) A review of all Unit 2 exterior building wall penetrations below the probable maximum flood level will be performed to determine if there are any other potential flood pathways that could either impact on Unit-2 PDMS stability or on Unit-1 safety.

These actions are expected to be completed by August 31, 1998.

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\*\_/The Energy Industry Identification System (EIIS), System Identification

(SI) and Component Function Identification (CFI) Codes are included in brackets, [SI/CFI] where applicable, as required by 10 CFR 50.73

(b)(2)(ii)(F).

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