

ACCESSION #: 9902190161

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 AN INADEQUATE PRIOR
INSPECTION

EVENT DATE: 01/12/98 LER #: 99-001-0 REPORT DATE: 02/05/99

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 TO NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On January 12, 1999 at about 3:00 PM, a member of the Independent Onsite Safety Review Group was inspecting repairs made to flood barriers in the wall between the Unit-2 Turbine Building and Control Building Area. These repairs had been made as corrective actions to the event reported in Licensee Event Report 05000320/98-001. Three wire chases through the wall were found that were not completely sealed. This

condition is contrary to the Post Defueling Monitored Storage (PDMS) Safety Analysis Report (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 January 13, 1999, and January 27, 1999, work crews re-inspected all penetrations in the affected wall and repaired the three 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 human error caused by inadequate communication during the performance of the prior inspections of June 16 through June 19, 1998.

The corrective actions were to seal the three penetrations found to be not in accordance with design specifications and to inspect all penetrations in the wall to determine whether any others were overlooked in the prior inspections.

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."

An event had occurred in June 1998 where penetrations through the wall between the Turbine Building and the Control Building Area were found to be not sealed to prevent the free flow of floodwater through the wall in the event of a design basis maximum probable flood. These open penetrations had resulted from dismantlement work in the area where fieldwork documents had not properly reflected the flood control design considerations and piping and conduit had been cut off on both sides of the wall leaving an open flow path. Corrective actions at that time included an inspection and repair of all wall penetrations and changes to the work control processes to assure that appropriate design considerations were incorporated into work control documents.

IV. Event Description

On January 12, 1999, a member of the Independent On-Site Safety Review Group (IOSRG) was inspecting the penetrations through the affected wall. The inspection was part of an independent safety review of and follow-up to the corrective actions performed as a result of the event documented in Licensee Event Report 05000320/98-001 dated July 2, 1998. During his inspection, he found three 4-inch electrical conduits through the wall that did not appear to be sealed. 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 311.0 feet into the Control Building Area. He notified the dismantlement project engineer who performed a closer inspection of the conduits. Two of

the conduits had no electrical cables through them and were filled with fire barrier foam. However, cables had at one time run through each of the chases and had apparently been pulled out leaving small diameter holes through the fire barrier foam. The third conduit had one remaining deactivated cable and similar to the other two had small diameter holes where cables had been removed. Corrective Action Process (CAP) form T1999-0031 was issued to document this condition as being outside the analyzed basis for Post Defueling Monitored Storage.

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No dismantlement work had been performed in this area since the prior event in June 1998. At the time of the previous event, dismantlement crews performed a visual inspection of all penetrations in the wall and repaired all of those that were not sealed. These penetrations were not affected by any dismantlement activities, and were more than likely breached as a result of post accident recovery activities. These were not found during the previous inspection because of personnel error. Since the previous event was the result of dismantlement and demolition type work, it is believed that personnel concentrated their inspection efforts on penetrations that were known to have been disturbed by the work activities. Penetrations that had not been disturbed by dismantlement activities apparently had received only a cursory visual inspection.

V. Component Data

Not Applicable

VI. Identification of Root Cause:

The root cause was personnel error due to inadequate communication by Engineering to the workers performing fieldwork to correct deficiencies related to the previous event in June 1998. The error was the failure to adequately communicate the importance and ramifications of the work to the crews performing the inspections. The previous inspection efforts were concentrated on penetrations known to have been disturbed by dismantlement activities where the breaching of the flood barriers was quite obvious. These three penetrations had not been disturbed by dismantlement activities and the breach was not readily discernable without very close examination. Some of the workers were not aware of the consequences and importance of the previous inspection. They were of the impression that their primary task was to find and repair flood barriers damaged by dismantlement work. They had not been apprised of the potential for finding deficient penetrations that may have existed since early accident recovery activities.

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,

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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 due to flooding through these penetrations was evaluated during reviews of the June 1998 event. That review determined that the event had no potential safety significance to Three Mile Island Unit 1. That review remains valid for this event.

In addition, this event was reviewed to determine whether additional follow-up was indicated to assess the flood potential through other walls.

As part of the corrective actions for the June 1998 event, other walls were inspected and drawings were reviewed to determine the potential for flooding from other sources including process piping that penetrates into the control block buildings from outside the flood protected area. That review concluded that these potential flood pathways had been adequately addressed. Since that review was conducted by the engineering and supervisory staff and group discussions were held during the conduct of the review, it is believed that it was not subject to similar human error and miscommunications. Therefore, it was concluded that there was no need to conduct any additional inspections of areas beyond the Turbine Building/Control Building Area wall.

VIII. Previous Events of Similar Nature

Licensee Event Report 05000320/98-001, dated July 2, 1998, "Flood Barriers Breached Between Turbine Building and Control Building Area Due to Inadequate Fieldwork Documents."

IX. Immediate Corrective Actions Taken

The three breached penetrations were sealed with expandable metal plugs. A thorough inspection of the entire wall found no additional breached penetrations.

The inspection was carried out by assembling a work team that mapped the affected wall and performed a 100% inspection of the wall penetrations below elevation 312 feet. The inspection included a close visual inspection and manual probing of the fill material. Any penetrations that

were not obviously completely sealed were identified for follow-up inspection by an engineer. The engineer inspected the questionable penetrations and gave specific directions for repair. The inspection and repairs were completed on January 27, 1999.

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X. Action Planned to Prevent Recurrence:

No actions in addition to those identified in Licensee Event Report 05000320/98-001.

*_/ 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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