

NON-PUBLIC?: N
ACCESSION #: 8906050366
LICENSEE EVENT REPORT (LER)

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

DOCKET NUMBER: 05000320

TITLE: Failure to Sample the Ventilation Effluent From the Waste Handling and Packaging Facility at Required Technical Specification Sample Frequency.

EVENT DATE: 05/06/89 LER #: 89-002-00 REPORT DATE: 06/02/89

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: Edward D. Schrull, TMI-2 Licensing Engineer TELEPHONE: 717-948-8461

COMPONENT FAILURE DESCRIPTION:

CAUSE: B SYSTEM: IL COMPONENT: MON MANUFACTURER: E070
REPORTABLE TO NPRDS: NO

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At approximately 1630 hours on May 1, 1989, the PING effluent monitor in the Waste Handling and Packaging Facility (WHPF) was declared out-of-service (OOS); thus, TMI-2 entered the Action Statement of TMI-2 Technical Specifications (Tech. Specs.) 3.3.3.1. Per the requirements of the TMI-2 Recovery Operations Plan Table 4.3-3, when the WHPF ventilation system is operating and the exhaust monitor is inoperable, auxiliary samples must be taken with daily filter changes and a gamma scan performed within 24 hours. Following the gamma scan, an analysis for gross alpha, gross beta, and Sr/Y-90 activities must be completed within 96 hours. These filter samples were accomplished by the Radiological Controls technician assigned to the WHPF until Friday, May 5, 1989; a different technician was assigned to weekend duty at the WHPF. The WHPF sampling requirement was not noted on the shift turnover checklist; thus, no samples were taken over the weekend. The event time/date of this occurrence was 1054 on May 6, 1989 (i.e., 24 hours after the last previous auxiliary sample was taken). In addition, for the sample taken on May 2, 1989, a gamma scan was performed with 24 hours, but the follow-up

analysis was not performed within the required 96 hours. Thus, this event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) due to the existence of a condition prohibited by the plant's Tech. Specs. The root cause of this event was personnel error by the TMI-1 Group Radiological Controls Supervisor (GRCS) for failure to list the sampling requirement on the shift turnover checklist and for failure to communicate the necessary requirements for handling, transfer, and analysis of the required backup sample. This event has been reviewed with all TMI-1 GRCSs. In addition, an engineering solution to the WHPF PING inoperability problem is being evaluated.

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 Waste Handling and Packaging Facility (WHPF) is used for processing and packaging solid radioactive waste generated during operations of GPU Nuclear units and TMI-2 cleanup activities. During the weekend of May 6 and 7, 1989, no activities were ongoing in the WHPF.

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

WHPF PING was out-of-service.

III. EVENT DESCRIPTION

This event involves the failure to perform daily auxiliary sampling in the WHPF while the primary effluent monitor (i.e., Eberline PING) (IEEE 805-1984 System Code-IL) was out-of-service (OOS). A subsequent event was discovered when one of the required auxiliary samples did not receive the proper radiochemical analysis. These requirements are specified in the TMI-2 Technical Specifications (Tech. Specs.) Section 3.3.3.1 and are implemented through the Recovery Operations Plan Section 4.3.3.1 (Table 4.3-3).

On May 1, 1989, the TMI-1 Radiological Controls technician assigned to the WHPF found the PING effluent monitor to be inoperable. The TMI-2 Control Room and Instrumentation and Control (I&C) were notified. Repairs were attempted but were not successful and the Control Room declared the PING OOS at 1630 on May 1, 1989. The Action Statement of Recovery Operations Plan Table 4.3-3 was entered, auxiliary sampling was initiated using auxiliary sampling equipment (i.e., an AMS-3 radiation monitor), and TMI-1 Radiological Controls began taking daily filter samples from this AMS-3. It is noteworthy that TMI-1

Radiological Controls personnel have recently assumed responsibility for performance of surveillance for the WHPF effluent sampling even though TMI-2 personnel operate the WHPF.

On May 5, 1989, the TMI-1 Group Radiological Controls Supervisor (GRCS) preparing the shift turnover checklist omitted the WHPF daily sampling requirements from the "Equipment Out Of Service" portion of the form. The Radiological Controls technician assigned to the WHPF had taken the daily AMS-3 samples from May 1, 1989, (Monday) through May 5, 1989, (Friday). However, a different technician was assigned to weekend duty on WHPF. Since the WHPF sampling was not noted on the turnover sheet, the oncoming GRCS was unaware of the requirement, the technician was not notified, and the AMS-3 samples were not taken over the weekend.

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On May 8, 1989, the oncoming GRCS noted that the daily samples had not been taken over the weekend and a TMI-2 Incident Event Report (IER) was initiated. The time/date of the occurrence was 1054 on May 6, 1989, which is 24 hours after the last previous AMS-3 sample was taken. During the event investigation, it was also revealed that one of the AMS-3 filter samples was not analyzed within the 96 hour time clock specified in Note 13 of Table 4.3-3. This sample was taken on May 2, 1989, and gamma-scanned by TMI-1 Radiological Controls. However, the sample was not forwarded to TMI-2 Chemistry for the required analyses (gross alpha, gross beta, and Sr/Y-90). Upon discovery that the time Clock had been exceeded on May 16, 1989, TMI-1 Radiological Controls submitted the AMS-3 sample for analysis.

Tech. Spec. Section 3.3.3 and Recovery Operations Plan Section 4.3.3 provide Radiation Monitoring Instrumentation operability requirements. The WHPF PING monitor provides the capability to automatically isolate the WHPF ventilation in the event of high airborne activity in the facility. An alarm will also be received in the TMI-2 Control Room. With the PING inoperable, these automatic interlock and remote alarm functions are disabled. In this case, ventilation isolation is performed manually by WHPF personnel upon receipt of an alarm from the backup monitor (AMS-3). The AMS-3 does not provide a remote alarm to the TMI-2 Control Room.

During waste handling operations, personnel are present at the WHPF to provide actions in response to an AMS-3 alarm. During periods when the WHPF is not occupied (i.e., weekends), no work is in progress; thus, the potential for generation/release of unmonitored airborne radioactivity is remote. The inoperability of the WHPF PING did not place the plant into an unanalyzed condition or a condition prohibited by the Tech. Specs.

The Recovery Operations Plan Table 4.3-3 lists required actions in the event

of instrument inoperability. Note 13 of this table allows effluent releases, via the monitored pathway, to continue for 30 days provided that auxiliary sampling is established. The auxiliary filter samples are required to be acquired and analyzed daily. This requirement was not met for the period of May 6 - 7, 1989, and represents a deviation from the plant's Tech. Specs. Note 13 of Table 4.3-3 also specifies a 96-hour time clock to complete the sample analysis. This time clock was exceeded for the May 2, 1989, AMS-3 sample which was not submitted for analysis until May 16, 1989. Thus, this event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) due to the existence of a condition prohibited by the plant's Tech. Specs.

The WHPF PING monitor was returned to service on May 30, 1989.

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IV. ROOT CAUSE OF THE EVENT

The root cause of this event was personnel error on the part of the TMI-1 GRCS in that he failed to list the sampling requirement on the shift turnover checklist. Personnel on the subsequent shifts were not aware of the daily sampling requirement; thus, no samples were taken on May 6 and 7, 1989. The sample analysis was not performed due to a GRCS error in failing to communicate the necessary requirements for handling, transfer, and analysis of the required AMS-3 sample. Contributing factors are the recent turnover of responsibility to TMI-1 personnel, differences in effluent sample analysis practices between TMI-1 and TMI-2, and a lack of familiarity with the TMI-2 Tech. Specs.

An additional contributing factor is the repeated failure and other hardware problems associated with the WHPF PING. This monitor has recently experienced a variety of operational problems related to the facility environment, an intermittent problem in the circuit boards, and the sensitivity of the PING to power surges. These problems resulted in a frequent occurrence of equipment failures requiring special operator/technician action, and an increase the probability of human error.

Differences in procedures and the conduct of business between the two units may have also contributed to this event. A specific example is the manner in which each unit's Control Room notifies a responsible department of activities required by a Tech. Spec. Action Statement. The TMI-1 Control Room provides daily notification to the responsible department, until release from the Action Statement. The TMI-2 Control Room only provides an initial notification. In TMI-2, it is the responsibility of the involved department to fulfill the Action Statement requirements.

V. CORRECTIVE ACTIONS

Corrective actions to resolve the personnel error aspects of this event are as follows:

1. This event has been reviewed with all TMI-1 GRCSs in order to emphasize the Action Statement requirements related to TMI-2 effluent monitors.
2. The TMI-1 GRCS responsible for the checklist omission has been counselled to be more attentive to detail and to be particularly aware of TMI-2 Tech. Specs. Action Statement requirements.
3. MI-1 Radiological Controls supervision will ensure that future sample requests, related to Tech. Specs. Action Statement requirements, properly denote time clock requirements on the sample request form.

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4. A revision to Procedure 9100-ADM-4250.01, "Radiological Controls/Chemistry Actions When RMS Malfunctions," has been prepared by TMI-1 Radiological Engineering. This revision will address contingencies and reference TMI-2 Tech. Specs. Action Statements in the event of a radiation monitor failure.

Corrective actions taken to resolve the equipment aspects of this event are as follows:

1. TMI-2 Plant Maintenance has installed batteries and surge protection devices at the WHPF PING in order to enhance instrument operability in the event of a power failure/surge.
2. TMI-2 Plant Maintenance will construct an environmentally controlled enclosure around the WHPF PING. Similar enclosures are in use for other PING type units at EPICOR II and in the plant. These enclosures have resulted in improved reliability for the PING units.
3. TMI-2 I&C will troubleshoot and evaluate the problem with the PING electronics. It should be noted that the electronic problem concerns the capability to shut off the pump for sampling purposes and does not impact radiation monitoring or ventilation interlock functions.

VI. COMPONENT FAILURE DATA

The equipment involved is an Eberline PING (Particulate, Iodine, and Noble Gas) ventilation radiation monitor (IEEE 805-1984 System Code-IL). The PING was installed at the WHPF on September 25, 1988. Three operational problems

have been associated with this unit:

1. Periodic power surges and losses occurring at the WHPF have impacted PING operations requiring equipment reprogramming and setpoint adjustment. A battery system was installed in February 1989 with no recurrence of this type of problem.
2. An intermittent circuitry problem prevents pump shutoff (via instrument keyboard) for sampling purposes. This problem has been noted in other PING type instruments at TMI-2. Corrective action by Maintenance has been hampered by the intermittent nature of this problem. Upon consultation with the vendor, a circuit board was changed in December 1988, but the problem has persisted.
3. With the onset of warmer weather, the ambient temperature in the WHPF has risen to a point where PING performance is affected. Temperatures in excess of approximately 85 deg.F have caused the unit to overheat and malfunction. This contributed to the failure of the WHPF PING on May 1, 1989.

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VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

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

The bases for monitoring operability of the radiation monitoring channels is to ensure that the radiation levels are measured in the areas served by the respective monitors and that the subsequent safety actions associated with receipt of a high radiation signal protect the health and safety of public by isolating the source of the radioactive effluent. Since there was no work ongoing in the WHPF during the weekend of May 6 and 7, 1989, the potential for generation/release of unmonitored airborne radioactivity was remote. In addition, the AMS-3 sample taken on Monday, May 8, 1989, was still a valid sample representative of the weekend of May 6 and 7, 1989. Therefore, this event did not jeopardize the health and safety of the public.

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June 2, 1989
4410-89-L-0062/0466P

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 89-02

Attached is Licensee Event Report 89-02 concerning the failure to sample the ventilation effluent from the Waste Handling and Packaging Facility at the required Technical Specifications frequency.

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

Sincerely,

M. B. Roche
Director, TMI-2

EDS/emf

Attachment

cc: F. I. Young - Senior Resident Inspector, TMI
W. T. Russell - Regional Administrator, Region I
J. F. Stolz - Director, Plant Directorate I-4
L. H. Thonus - Project Manager, TMI Site

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