

NON-PUBLIC?: N

ACCESSION #: 9303010218

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island - Unit 2 PAGE: 1 OF 05

DOCKET NUMBER: 05000320

TITLE: Failure to Sample PWDS Source Tank

EVENT DATE: 01/26/93 LER #: 93-001-00 REPORT DATE:

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 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: J. S. Schork - TMI Licensing TELEPHONE: (717) 948-8832

Engineer

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On January 26, 1993, the TMI-2 Processed Water Disposal System (PWDS) was operating in the "coupled mode" (i.e., evaporator coupled to the vaporizer) when it was determined that 221,000 gallons of water had been processed by the PWDS in the coupled mode from PWST-1 without the required periodic confirmatory sample (i.e., each 100,000 gallons) of the source tank having been taken.

This event was the result of both personnel error and a programmatic deficiency. Normally, the status of PWDS processing is closely tracked by the PWDS Cognizant Engineer and Plant operations shift supervision. In this event, both the PWDS Cognizant Engineer and the shift supervision failed to adequately track the volume of AGW processed and ensure the required source tank representative sample was taken and analyzed after each 100,000 gallons had been processed. The programmatic deficiency is that there is no procedural control requiring routine review of water processing progress to ensure the sample is obtained in a

END OF ABSTRACT

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timely manner.

TMI-2 Tech. Specs. states, "ACCIDENT GENERATED WATER shall be disposed of in accordance with NRC-approved procedures." Failure to obtain the sample at the required 100,000 gallon frequency resulted in disposal of AGW not in accordance with the NRC-approved PWDS process control procedure. Therefore, PWDS operation in this manner, although inadvertent, was

prohibited by the plant's Tech. Specs. and the event is reportable per 10 CFR 50.73(a)(2)(i)(B).

This event is similar in nature to LERs 91-02, 91-03, 91-04 and 91-05.

#### I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility was in Mode 3. The TMI-2 PWDS was operating in the "coupled mode." In the coupled mode of operation, accident generated water (AGW) is pumped to the evaporator where it is processed into two forms: a concentrated liquid waste and a purified liquid distillate. The concentrated waste is then dried to a solid waste form and packaged for transport and burial. The liquid distillate is pumped to the vaporizer where it is discharged to the atmosphere as steam. The process operates in a continuous flow mode with the evaporator and vaporizer coupled. During this evolution, the PWST-1 was the source tank for feed to the evaporator.

#### 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 January 26, 1993, the PWDS was operating in the "coupled mode". At approximately 3:00 pm the Manager, TMI-2 Operations and Maintenance contacted the PWDS Cognizant Engineer and asked when the next 100, 000 gallon sample of PWST-1 was required. After checking the operating

records, the PWDS Cognizant Engineer determined that 221,000 gallons had been processed in the coupled mode from PWST-1 since the start of the batch with no confirmatory sample having been taken.

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The PWDS Technical Evaluation Report (TER), section 3.5, states that once processing has begun on a source tank, the tank will be periodically resampled every 100,000 gallons to confirm the initial analyses of the tank contents.

Taking into account the standard 25% allowance for technical specification required surveillances, samples were required to be taken every 100,000 ( 25,000) gallons of processing.1\_/ The TER 100,000 gallon sampling requirement is reflected in the PWDS Process Control Procedure, 4215-OPS-3185.06, which is an NRC-approved document.

PWST-1 was recirculated and sampled on October 27, 1992 prior to initiation of "coupled mode" processing of the tank volume. Normally, in the coupled mode of operation, the tank contents would have been recirculated and resampled after each 100,000 gallons had been processed. However, in this case, the tank was not recirculated and sampled until the discovery that 221,000 gallons had been processed without a confirmatory sample having been drawn.

When the PWDS Cognizant Engineer informed the Manager, TMI-2 Operations and Maintenance of the missed surveillance, the Manager directed PWST-1 to be placed on recirculation. The missed confirmatory sample was taken on January 27, 1993 at 10:30 a.m. A total of about 228, 000 gallons were processed between the initial

sample and the confirmatory sample.

#### IV. ROOT CAUSE

The root cause of this event is both personnel error and a programmatic deficiency. Personnel error resulted in the failure of the PWDS Cognizant Engineer and Operations personnel to adequately track the progress of PWDS processing of the contents of PWST-1 and ensure the confirmatory sample was taken at the required 100,000 gallon frequency.

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1\_/TMI-2 Technical Specifications Section 4.0.2 allows a surveillance interval of 25% with a total maximum combined interval for any 4 consecutive tests not to exceed 3.25 times the surveillance interval.

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The programmatic deficiency was manifested in a failure to have a procedural control requiring periodic verification of the status of PWDS processing for the purpose of ensuring that sampling would be performed at the required 100,000 gallon frequency. Although the TMI-2 process control procedure required samples be drawn every 100,000 gallons, there was no procedural requirement to monitor the progress of PWDS processing to ensure that the 100,000 gallon confirmatory sample was taken, as required.

#### V. CORRECTIVE ACTIONS

The immediate corrective action taken was to place PWST-1 on

recirculation and take a representative sample of the tank contents. In addition, a TMI-2 Incident Event Report was initiated and the NRC and the PaDER were notified. Long term corrective actions include the following:

1. TMI-2 procedure 4215-OPS-3185.06 will be revised to include a chart on the Process Instruction Data Sheet which will specify when the 100,000 gallon source tank confirmatory samples are to be taken during PWDS processing.
2. The TMI-2 Shift Foremen's Turnover Checklist has been revised to include a block to record the present PWDS source tank level and the level at which the next sample is due.
3. The TMI Independent Onsite Safety Review Group (IOSRG) is performing a Human Performance Evaluation System (HPES) review of this event.

## VI. COMPONENT FAILURE DATA

N/A

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

The significance of the failure to obtain the required sample is mitigated by a number of facts. First, the feedwater from the PWST to the evaporator was sampled and analyzed weekly, as required, and showed no adulteration

of the tank. These weekly samples are not routinely analyzed for Sr-90, which is the primary indicator of stratification; however, historically stratification has not been observed in the tank. In addition, the evaporator effluent was sampled by a composite sampler which was analyzed every 48 hours, as required, and the vaporizer effluent was sampled and analyzed every 12 hours, as required. None of these sample analyses yielded any unexpected or out-of-specification results. Therefore, there is little likelihood that the water chemistry conditions in PWST-1 experienced any significant changes during the processing of the 228,000 gallons. Finally, the PWST-1 sample taken after the discovery of the missed sample showed no indication of stratification or adulteration of tank contents.

Verification that the PWDS is operating correctly is performed by determining the "decontamination factor" (DF) every 12 hours. This is done by comparing the concentration of boron in the vaporizer exhaust sample to the concentration of boron in the initial source tank sample. Maintenance of an adequate DF ensures that the concentration of radionuclides in the vaporizer effluent is kept at or below 1/1000 of base case water as described in the PWDS TER and the NRC PEIS Supplement 3. An adequate DF was maintained throughout the processing period in which the 100,000 gallon confirmatory samples were missed. Thus, the radioactive release from the PWDS during processing of the 228,000 gallons was maintained within the limits approved by the NRC and this event did not pose a potential public health and safety concern.

VIII. PREVIOUS EVENTS OF A SIMILAR NATURE

LERs 91-02, 91-03, 91-04 and 91-05

ATTACHMENT 1 TO 9303010218 PAGE 1 OF 1

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C000-93-2027

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Three Mile Island Nuclear Station Unit 2 (TMI-2)  
Operating License No. DPR-73  
Docket No. 50-320  
Licensee Event Report 93-01

Dear Sir:



Attached is Licensee Event Report 93-01 concerning a failure to conduct sampling of AGW during "coupled mode" operation of the Processed Water Disposal System (PWDS) as required by an NRC-approved procedure.

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

Sincerely,

R. L. Long  
Director, Corporate Services/TMI-2

JSS/dlb

Attachment

cc: T. T. Martin - Regional Administrator, Region I  
M. T. Masnik - Project Manager, PDNP Directorate  
L. H. Thonus - Project Manager, TMI Site  
F. I. Young - Senior Resident Inspector, TMI

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