NON-PUBLIC?: N
ACCESSION #: 9105210057
LICENSEE EVENT REPORT (LER)

FACILITY NAME: THREE MILE ISLAND UNIT 2 PAGE: 1 OF 03

DOCKET NUMBER: 05000320

TITLE: PROCESSED WATER DISPOSAL SYSTEM SAMPLE VALVE MISALIGNMENT
EVENT DATE: 04/12/91 LER #: 91-004-00 REPORT DATE: 05/10/91

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:
NAME: E. D. Schrull - TMI Licensing TELEPHONE: (717) 948-8832
Engineer

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On April 12, 1991, the TMI-2 Processed Water Disposal System (PWDS) was operating in the "coupled mode" (i.e., evaporator coupled to the vaporizer) when a vaporizer exhaust sample valve was found closed. A sample of the vaporizer exhaust is routinely analyzed to calculate the system decontamination factor (DF); it is not used to determine radionuclide release.

This event was a result of personnel error in that the evaporator operator did not follow the operating procedure. Contributing factors were the unwieldy nature of the relevant procedure (i.e., it does not lend itself to ease of use) and the decision to have the TMI-2 Control Room sign-off on a separate copy of the procedure. Upon discovery of the mispositioned valve, the immediate corrective actions taken were to open the valve and initiate an investigation into the cause of the

mispositioning. The PWDS was subsequently shut down. Longer term corrective actions include additional training for the evaporator operators and a revision to the PWDS operating procedure.

TMI-2 Tech. Spec. 3.9.13 states, "ACCIDENT GENERATED WATER shall be disposed of in accordance with NRC-approved procedures." Per the NRC-approved PWDS operating procedure, the vaporizer exhaust sample valve was required to be open during coupled mode operations. 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 and 91-03.

END OF ABSTRACT

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.

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 April 12, 1991 at 3:50 a.m., the TMI-2 PWDS was operating in the coupled mode when an evaporator shutdown was initiated due to a chiller unit failure. At this time, vaporizer exhaust stack sample valve WD/SMV! V-86 was closed. This action was not in accordance with the PWDS operating procedure. Evaporator operations were resumed in accordance with the applicable warm restart portion of the operating procedure at 8:00 a.m. using domestic water. Vaporization of domestic water started at approximately 10:15 a.m.

and vaporization of AGW resumed at approximately 11:15 a.m. on April 12, 1991. Valve V-86 was not reopened when the evaporator was restarted because the warm restart portion of the procedure did not specify reopening the valve. The evaporator operator did not verify the proper valve positioning with the main body of the procedure. At about 12:00 noon on April 12, 1991, the TMI-2 Plant Chemist noted that there was no flow at the vaporizer exhaust sampler. He reset the flow to be within the specified range and notified the appropriate TMI-2 personnel.

Following discussion among Site Operations management, the evaporator was shutdown at approximately 1:05 p.m. on April 12, 1991. Based on the events reported in LERs 91-029 03, and 04, it was decided that the evaporator should remain shutdown pending a major revision to the PWDS operating procedure and the successful completion of additional training for the evaporator operators.

IV. ROOT CAUSE

The root cause of the event was personnel error by the evaporator operator; the PWDS operating procedure was not followed. One contributing factor was the unwieldy nature of the relevant procedure (i.e., it does not lend itself to ease of use). A second contributing factor was the management decision to have the TMI-2 Control Room sign-off on a separate copy of the procedure. This resulted in

confusion between operators regarding the responsibility for sampling valve lineup verification.

V. CORRECTIVE ACTIONS

Upon discovery of the mispositioned valve, the immediate corrective actions taken were to open the valve and initiate an investigation into the cause of the mispositioning. The PWDS was subsequently shut down. Longer term corrective actions include additional training for the evaporator operators and a revision to the PWDS operating procedure. A training session was held on April 18, 1991; the procedure revision was approved and implemented on May 8, 1991. Startup of the PWDS occurred on May 8, 1991 using domestic water for initial operations to ensure the evaporator operators could use the revised procedure. Decoupled operations using AGW began on May 9, 1991 after successful completion of domestic water operation.

Areas of responsibility have been specifically addressed in the revision to the operating procedure. In addition, there will be a sole sign-off copy of the procedure which will be maintained in the evaporator building. Prior to evaporator system startup, the TMI-2 Shift Foreman will verify the completion of all prerequisites on that copy of the procedure. Finally, this event is the subject of a Human Performance Enhancement System (HPES) review.

VI. COMPONENT FAILURE DATA

N/A

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

No safety function is performed by valve V-86. A sample of the vaporizer exhaust is routinely analyzed to calculate the system DF; it is not used to determine radionuclide release. During vaporizer operations, the release of radioactivity from the PWDS is determined by the vaporizer feed compositor sample and monitored by the vaporizer influent radiation monitor (PWD-RML-1) WD/MON!. Release calculations are based on the vaporizer feed compositor sample and, thus, no credit is taken for decontamination by the vaporizer. Thus, there were no unmonitored releases of radioactivity from the PWDS during this period and this event did not pose a potential public health and safety concern.

VIII. PREVIOUS EVENTS OF A SIMILAR NATURE

LERs 91-02 and 91-03.

* 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).

ATTACHMENT 1 TO 9105210057 PAGE 1 OF 1

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May 10, 1991
C312-91-2030
C000-91-1299

US Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Dear Sir:

Three Mile Island Station Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 91-04

Attached is Licensee Event Report 91-04 concerning a sample valve in the TMI-2 Processed Water Disposal System that was found to be in a position not in accordance with 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

EDS/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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