

MAR 04 1985

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NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104 EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

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B&W

FACILITY NAME (1) Three Mile Island Unit 2 DOCKET NUMBER (2) 05000320 PAGE (3) 1 OF 04

TITLE (4) update Periods of Non-Representative Sampling of the Reactor Coolant System

EVENT DATE (5) 10/16/84 LER NUMBER (6) 020-01013085 REPORT DATE (7) 01/30/85 OTHER FACILITIES INVOLVED (8)

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) Operating Mode (9) N Power Level (10) 01010

LICENSEE CONTACT FOR THIS LER (12) NAME John C. Auger, TMI-2 Licensing Engineer TELEPHONE NUMBER 7179481-8244

Table with 11 columns: CAUSE, SYSTEM, COMPONENT, MANUF. TURER, REPORTABLE TO NPRDS, CAUSE, SYSTEM, COMPONENT, MANUF. TURER, REPORTABLE TO NPRDS. All cells are empty.

SUPPLEMENTAL REPORT EXPECTED (14) YES (If yes, complete EXPECTED SUBMISSION DATE) NO X NO EXPECTED SUBMISSION DATE (15)

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On October 17, 1984, the following event was determined to be reportable. At that time, it was determined that Reactor Coolant System (RCS) samples obtained through the Temporary Nuclear Sampling (TNS) System may not have been representative of the reactor vessel volume. This condition has been verified to have periodically existed since June 1980. The sampling performed through the TNS System was non-representative because the sample line was not adequately purged prior to drawing a sample. This condition resulted from the identification of the incorrect sample line purge volume in the TNS System sampling procedure and the existence of misleading flow guage face plates on the flow guages of the TNS System sample lines. The result of the periodic non-representative RCS sampling was that the intent of Recovery Operations Plan Surveillance Requirement 4.1.1.2 was not met and, hence, the unit was placed in a condition not allowed by the Technical Specifications. This condition is thus considered reportable per 10 CFR 50.73(a)(2)(i)(B).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Three Mile Island Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 0 8 4	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			- 0 2 0	- 0 1	0 2	OF 0 4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility was in a long-term cold shutdown state. The reactor decay heat was being removed via loss to ambient.

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 October 17, 1984, the following event was identified as being reportable.

On October 16, 1984, activities related to the installation of an in-line boronometer in the Temporary Nuclear Sampling (TNS) System (no IEEE Code) revealed that the face plates of the flow gauges were misleading. A subsequent investigation has identified the following information which appears below.

The function of the TNS System is to provide a means for obtaining representative liquid samples from sources of radioactive water by remote sampling. This system was installed and became operational in June 1980. The TNS System has been the primary means of sampling the RCS since that time.

The RCS (IEEE Code A.B.) was not representatively sampled through the TNS System periodically between June 1980 and October 1984. This corresponds with those times that the RCS was in the pressure control mode and while the plant was in the level control mode with the Internals Indexing Fixture (IIF) installed. Specifically, the time periods are June 1980 to June 1982, December 1982 to August 1983, April 1984 to June 1984, and August 1984 to October 1984. During the remaining times, the RCS was representatively sampled by means of a dip sampling method. The RCS is currently being representatively sampled (reference Corrective Action Section).

The American Standard Testing Methods (ASTM) Standard D3370, "Practices for Sampling Water", states that a sample is representative when three (3) or more volumes of the sample line are purged prior to obtaining the sample. Samples taken of the RCS via the TNS System during the periods noted above were not representative, as defined by ASTM Standard D3370, because less than three (3) volumes of the sample line were purged prior to obtaining the sample. (Approximately 12 gallons were typically

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Three Mile Island Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 4	- 0 2 0	- 0 1	0 3	OF 0 4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

purged prior to drawing a sample, but, depending on the sample pathway, a minimum of 24 to 39 gallons were required in order to draw a representative sample.)

Also identified during this investigation is that from June 1980 to October 1984 the Reactor Coolant Bleed Holdup Tanks, the Miscellaneous Waste Holdup Tank, and the Neutralizer Tanks were not representatively sampled.

IV. ROOT CAUSE OF THE EVENT

There are two root causes for the non-representative sampling of the RCS via the TNS System. First, the sample lines from the RCS to the sampling point were not adequately purged because of a misleading face plate installed on flow guage SNS-FI-6. Second, the TNS System Procedure, 2104-4.62, Revision 0, identified the incorrect purge volume. Therefore, either factor alone would have caused the non-representative sampling of the RCS.

Additionally, the flow element associated with SNS-FI-6 was incorrectly sized (i.e., larger). This flow element, SNS-FE-6, alone would not have resulted in insufficient purge of the sample line and did not contribute to the cause of this event. Actually, the incorrectly sized flow element alone would have caused the purging of more than was necessary for a representative sample to be drawn.

The root cause for the non-representative sampling of the Reactor Coolant Bleed Holdup Tanks, the Miscellaneous Waste Holdup Tank, and the Neutralizer Tanks was the misleading face plates installed on their respective sample line flow guages. The sampling procedure in these cases did identify the correct purge volumes.

V. CORRECTIVE ACTIONS PLANNED

1. The Sampling Procedure, 2104-4.62, has been revised to identify the correct purge volume for obtaining a representative RCS sample through the TNS System and to provide additional guidance on the use of the flow guages.
2. The units of the flow guages are now clearly and correctly identified.
3. The misleading flow guage face plates and the incorrectly sized flow element are examples of a generic modification control problem. Several plant modifications were made at

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Three Mile Island Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 4	- 0 2 0	- 0 1	0 4	OF 0 4

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TMI-2 shortly after the March 1979 accident. For up to two (2) years after the accident, these modifications were placed immediately into use after installation and never were formally turned over to the plant. These modifications are receiving a comprehensive re-examination by the TMI-2 Site Operations Department to preclude events of this nature.

VI. COMPONENT FAILURE DATA

N/A

VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

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

The failure to representatively sample the RCS resulted in the loss of one of the primary means for detection of a boron dilution event. Under most conditions, independent and redundant mechanisms existed for detecting a boron dilution event (e.g., level indication). During conditions in which sampling was the designated means for detecting a boron dilution event, analysis indicates that the sampling was adequately representative to detect a trend of decreasing RCS boron concentration. At all times the physical controls which prevent a boron dilution event remained in place. These physical controls included, at a minimum, single valve isolation which was verified by periodic valve position surveillance inspections. Also, during the times when the RCS was in the pressure control mode, the RCS pressure was kept at a higher pressure than any significant dilution source.

Based on an analysis by the licensee, the failure to representatively sample the Reactor Coolant Bleed Holdup Tanks, the Miscellaneous Waste Holdup Tank, and the Neutralizer Tanks did not have a significant impact on nuclear safety or result in a non-compliance with regulatory requirements.



GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057-0191
717 944-7621
TELEX 84-2386
Writer's Direct Dial Number:

(717) 948-8461

4410-85-L-0030
Document ID 0171A

January 30, 1984

US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

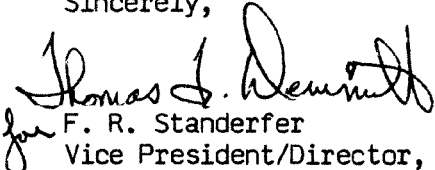
Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 84-020, Revision 1

Attached is updated Licensee Event Report 84-020 concerning periods of non-representative sampling of the Reactor Coolant System. This event was initially submitted on November 16, 1984.

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

Sincerely,


for F. R. Standerfer
Vice President/Director, TMI-2

FRS/JCA/jep

Attachments

cc: Regional Administrator - Office of I & E, Dr. T. E. Murley
Program Director - TMI Program Office, Dr. B. J. Snyder
Deputy Program Director - TMI Program Office, Dr. W. D. Travers

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