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U.S. NUCLEAR REGULATORY COMMISSION

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LTR. TRANS THE FOLLOWING.....

PLANT NAME: THREE MILE ISLAND # 1

ENCLOSURE

LICENSEE EVENT REPORT FOR R.O. # 76-46/1T, ON 12/13/76 CONCERNING TEH CONCENTRATION OF BORIC ACID IN THE BORATED WATER STORAGE TANK BEING LESS THAN SPECIFIED MINIMUM.....

(1 SIGNED CY. RECIEVED)
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December 28, 1976

Mr. J. P. O'Reilly, Director
Office of Inspection and Enforcement, Region 1
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Sir:

Docket No. 50-289
Operating License No. DPR-50

In accordance with the Technical Specifications of our Three Mile Island Nuclear Station Unit 1 (TMI-1), we are reporting the following reportable occurrence. However, as stated in the telephone conversation with Mr. Hannon, of your office on December 27, 1976, this report is one day late.

(1) Report Number: 76-46/1T

(2a) Required Report Date: 12/27/76

(2b) Date of Occurrence: 12/13/76

(3) Facility: Three Mile Island Nuclear Station - Unit 1

(4) Identification of Occurrence:

Title:

Concentration of boric acid in the borated water storage tank less than specified minimum.

Type:

A reportable occurrence as defined by Technical Specification 6.9.2.A(2) in that the concentration of boric acid in the Borated Water Storage Tank was less than the specified minimum, thus leading to operation of that system with a parameter subject to a limiting condition for operation, less conservative than the least conservative aspect of that limiting condition for operation established in Technical Specification 3.3.1.1.A.

(5) Conditions Prior to Occurrence:

Power:	Core:	2535 MWT
	Elec:	845 MWe
RC Pressure:		2155 psig
RC Flow:		140×10^6 lbs/hr.
RC Temp:		$579^{\circ}F$ T_{ave}
PRZR Level:		220 inches
PRZR Temp:		$650^{\circ}F$

(6) Description of Occurrence:

On December 12, 1976, while performing the Borated Water Storage Tank (BWST) Water Sample, boron concentrations less than the required 2270 ppm were obtained. Several additional samples were taken which substantiated the original findings. At 0415 hours, 990 gallons of concentrated boric acid (11,280 ppm) were added to the BWST which increased the boron concentration to greater than 2270 ppm.

Subsequent sampling indicated boron concentrations less than 2270 ppm and approximately 3600 gallons of concentrated boric acid (12,000 ppm) were added to the BWST. At 0445 hours on December 13, 1976, sample results consistently indicated a concentration of 2330 ppm.

On December 17, 1976, analysis of a known sample of borated water showed an unexpectedly low value. It was found that the standard used in making the solution for determining boron concentrations was not of the proper concentration, thus giving results approximately 5% below the actual value. An estimate by calculation, showed that the boron concentration since December 3, 1976, was greater than 2270 ppm. However, because no definite proof can be established, we are still considering this a reportable event.

(7) Designation of Apparent Cause of Occurrence:

This event has been determined to be caused by leakage of water from the Decay Heat Removal System, which was circulating Reactor Coolant at 1200 ppm boron, back to the BWST through some valves. This would have a tendency to dilute the borated water in the BWST.

Also, due to stratification within the tank, analysis performed on December 3, 1976, indicated a concentration of 2296 ppm.

(8) Analysis of Occurrence:

It has been determined that this occurrence did not constitute a threat to the health and safety of the public in that the boron concentration in the BWST was adequate to safely shutdown the reactor.

(9) Corrective Action:

In addition to the immediate corrective action described above:

1) The BWST recirculation system will be evaluated to determine minimum recirculation time to assure representative samples are obtained in the future.

2) The Chemistry Department personnel will be counseled to prevent recurrence of the analysis problem.

The Plant Operation Review Committee and Unit Superintendent have reviewed and approved the above corrective action and have taken steps to assure its completion.

(10) Failure Date: N/A

Similar Events: None

Sincerely,

W. M. Creitz
President

WMC:DGM:rk

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