



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 26, 1994

Docket No. 50-289

Mr. T. Gary Broughton, Vice President  
and Director - TMI-1  
GPU Nuclear Corporation  
Post Office Box 480  
Middletown, Pennsylvania 17057

Dear Mr. Broughton:

SUBJECT: THREE MILE ISLAND UNIT 1 - CONTROL ROD DROP TIME CRITERIA  
(TAC NO. M89053)

On April 22, 1994, GPU Nuclear Corporation (GPUN) submitted a control rod drive testing contingency plan for rod drop time testing to be conducted on June 1, 1994. The NRC held a public meeting with GPUN on May 3, 1994, to discuss this plan, specifically the criteria to be used to determine if removal and inspection of one or more control rod drive mechanisms (CRDMs) is necessary. A followup conference call was conducted on May 11, to further discuss these criteria. Your April 22 letter requested the staff's approval of the plan and evaluation criteria.

The purpose of the testing on June 1 will be to confirm the effectiveness of the actions committed to in your letter of March 26, 1994. These actions are intended to minimize crud buildup in the CRDMs, which is believed to be the root cause of the slow rod drop times (i.e., in excess of the 1.66 second technical specification limit) experienced during testing in October 1993 and March 1994. The actions you committed to are to operate with the reactor coolant system at a higher pH and to exercise all CRDMs on a biweekly basis. Your March 26 letter committed to obtain control rod drop times within 3 months of reactor startup to verify that all rods drop within the required time. The March 26 letter also stated that if, during this testing, any rod drop time exceeds 1.66 seconds, such rods will not be exercised prior to obtaining NRC approval.

Your April 22 letter defined improvement in rod drop time as follows:

- a. no rod which had an as-found drop time <1.66 seconds in March 1994 has an as-found drop time >1.66 seconds in June 1994, and
- b. no rod which had an as-found drop time of >1.66 seconds in March 1994 has a drop time >2.14 seconds in June 1994.

Your letter requested prior approval from the NRC for GPUN to be able to perform additional drops for a control rod that meets these criteria on the first test. Having carefully considered your request, we have determined that we cannot give prior approval to the above criteria for additional rod drops.

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If an as-found rod drop time exceeds the technical specification limit of 1.66, the NRC requires specific discussion regarding the corrective action for that rod based on the actual test data before any further action is taken, including additional drops. If any as-found rod drop times exceed 1.66 seconds, at least one CRDM should be removed and inspected to confirm the suspected root cause of the slow rod drop times.

Other criteria were proposed in your April 22 letter and are discussed below:

Proposed Criterion

If all as-found drop times are <1.66 seconds, reactor operation may resume without further delay.

NRC Position

The NRC agrees with this criterion subject to the conditions stipulated in the NRC position for the next criterion.

Proposed Criterion

If all as-found drop times are <1.66 seconds and the average of the drop times for all rods that have never exceeded 1.66 seconds has not increased by more than 0.1 seconds, TMI-1 will operate through the remainder of Cycle 10 without further rod testing.

NRC Position

The NRC believes that because of the unique history of rod drop times at TMI-1 during the past 8 months, and lacking confirmation of the root cause, future testing plans must be made only after analysis is made of the data obtained from the June 1994 testing.

Proposed Criterion

If the definition of improvement discussed above is not met, the plant will be cooled down and at least one CRDM will be removed, inspected, and modified by installing a thermal barrier of slightly different design.

NRC Position

The NRC agrees with this criterion.

Proposed Criterion

If it is not possible to obtain as-left drop times of <1.66 seconds for all rods, GPU Nuclear will not restart TMI-1 without obtaining NRC approval.

NRC Position

The NRC agrees with this criterion. However, GPUN should establish the proper number of retests allowed to reach the conclusion that "it is not possible" to meet the 1.66 second limit.

Proposed Criterion

If the average of the drop times for all rods that have never exceeded 1.66 seconds has increased by more than 0.1 seconds, additional rod drop testing will be scheduled for Fall 1994.

NRC Position

The NRC agrees with this criterion.

To expedite communications with the NRC during the testing and during evaluation of the results, the NRC will have at least one representative, including the NRR Project Manager, onsite during this period. The cognizant managers and technical reviewers at NRR and Region I have been briefed regarding this testing and will be available to review the results via conference calls as necessary.

As recommended by the staff in the May 3 meeting on this subject, GPUN has submitted a Technical Specification Change Request to the staff as a contingency measure. This request is in the process of review and will be processed in an expeditious manner.

Sincerely,

Original signed by:

John F. Stolz, Director,  
Project Directorate 1-4  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

cc: See next page

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DATE	5/25/94	5/25/94	5/25/94	5/25/94	5/26/94

Proposed Criterion

If it is not possible to obtain as-left drop times of <1.66 seconds for all rods, GPU Nuclear will not restart TMI-1 without obtaining NRC approval.

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The NRC agrees with this criterion. However, GPUN should establish the proper number of retests allowed to reach the conclusion that "it is not possible" to meet the 1.66 second limit.

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NRC Position

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Mr. T. Gary Broughton  
GPU Nuclear Corporation

Three Mile Island Nuclear Station,  
Unit No. 1

cc:

Michael Ross  
O&M Director, TMI-1  
GPU Nuclear Corporation  
Post Office Box 480  
Middletown, Pennsylvania 17057

Michele G. Evans  
Senior Resident Inspector (TMI-1)  
U.S. Nuclear Regulatory Commission  
Post Office Box 311  
Middletown, Pennsylvania 17057

John C. Fornicola  
Director, Licensing and  
Regulatory Affairs  
GPU Nuclear Corporation  
100 Interpace Parkway  
Parsippany, New Jersey 07054

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Jack S. Wetmore  
TMI Licensing Manager  
GPU Nuclear Corporation  
Post Office Box 480  
Middletown, Pennsylvania 17057

Robert B. Borsum  
B&W Nuclear Technologies  
Suite 525  
1700 Rockville Pike  
Rockville, Maryland 20852

Ernest L. Blake, Jr., Esquire  
Shaw, Pittman, Potts & Trowbridge  
2300 M Street, NW.  
Washington, DC 20037

William Dornsife, Acting Director  
Bureau of Radiation Protection  
Pennsylvania Department of  
Environmental Resources  
Post Office Box 2063  
Harrisburg, Pennsylvania 17120

Chairman  
Board of County Commissioners  
of Dauphin County  
Dauphin County Courthouse  
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Chairman  
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of Londonderry Township  
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