

SEP 21 1984

DMB 016

Docket No. 50-289

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Mr. Henry D. Hukill, Vice President  
and Director - TMI-1  
GPU Nuclear Corporation  
P. O. Box 480  
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

We are reviewing the "B" reactor coolant pump (RCP) shaft failure described in your letter of April 10, 1984 with respect to: 1) the cause of the failure, specifically whether there is any connection to the corrosion cracking problem found in the steam generators; and 2) the safety aspects of RCP shaft failure and impeller erosion. Your letter described the circumstances preceding identification of the problems, reached several conclusions apparently based on the information then available but not fully supported in the letter, and identified ongoing and future actions.

Many or all of the ongoing and future actions have presumably been completed by this time, enabling you to confirm operability of the reactor coolant pumps. In order to permit us to evaluate subsequent plant operation, we request that you provide the following information.

1. Confirm whether or not the pump shaft failure and impeller erosion are related to the thiosulfate corrosion previously identified in the OTSG and other parts of the primary system.
2. Provide supporting information for the above conclusion, including results of your own analysis, of the laboratory analyses by B&W, and of the review by Westinghouse, as appropriate.
3. Explain, with supporting information and justification, what the causes of the shaft failure and impeller damage were.
4. Although vibration detection may afford protection against radical shaft failure, you state in your letter of April 10, 1984 that in any event, pump shaft failure is bounded by the existing locked rotor safety evaluation. However, the TMI-1 FSAR locked rotor evaluation does not appear to include the effects of a shaft break, which permits a greater reverse flow through the affected loop than the locked rotor case. Please confirm that shaft failure is indeed bounded by the FSAR analysis.

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Mr. Henry D. Hukill

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5. In addition, please provide justification for the statement in your April 10, 1984 letter, as we understand it, that the RCPs, with their protection systems and associated support systems, will withstand a shaft break without resulting in failure of the reactor coolant pressure boundary.
6. Discuss the safety significance of degradation of the RCP impellers, including the effect on safe plant operation of significant cavitation damage. If significant impeller degradation equivalent to that observed on the "B" pump is found to be of safety significance, please discuss further your basis for concluding that such damage is not present on the other three impellers. Provide results of any flow testing already performed to confirm hydraulic performance and describe your plans for future flow testing.

In addition, you should provide any further information you deem appropriate which supports your statement that the pump damage has no safety significance, and which confirms operability of all reactor coolant pumps. Please inform us within ten days of receipt of this letter of your schedule for responding to the above requests.

Sincerely,

Original signed by  
Darrell G. Eisenhut

Darrell G. Eisenhut, Director  
Division of Licensing

cc: See next page

\*See previous white for concurrences.

ORB#4:DL  
HSilver;cf  
9/19/84

ORB#4:DL  
JStoiz\*  
9/6/84

AD:MCET:DE  
WJohnston\*  
9/6/84

AD:C&SE:DE  
JKnight\*  
9/13/84

AD:RS:DSI  
WHouston\*  
9/13/84

AD:UL  
GLainas  
9/19/84

D:DL  
DEisenhut  
9/20/84

Mr. Henry D. Hukill

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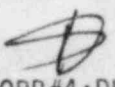
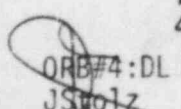
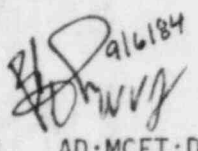
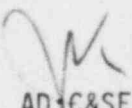
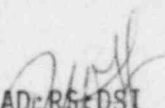
5. Provide justification for the statement in your April 10, 1984 letter, as we understand it, that the RCPs, with their protection systems and associated support systems, will withstand a shaft break without resulting in failure of the reactor coolant pressure boundary.
6. Discuss the safety significance of degradation of the RCP impellers. Justify the statement in your letter of April 10, 1984 that "superficial cavitation/separation damage of the inlet impeller valves will not degrade the pump hydraulic performance or substantially alter the structural integrity of the impeller." Discuss the effect on safe plant operation of significant cavitation damage. Provide results of any flow testing already performed to confirm hydraulic performance and describe your plans for future flow testing.

In addition, you should provide any further information you deem appropriate which supports your statement that the pump damage has no safety significance, and which confirms operability of all reactor coolant pumps. We feel that it is necessary to complete our evaluation prior to any plant restart. Please inform us within seven days of receipt of this letter of your schedule for responding to the above requests.

Sincerely,

Darrell G. Eisenhut, Director  
Division of Licensing

cc: See next page

						
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Mr. R. J. Toole  
O&M Director, TMI-1  
GPU Nuclear Corporation  
P. O. Box 480  
Middletown, Pennsylvania 17057

Board of Directors  
P. A. N. E.  
P. O. Box 268  
Middletown, Pennsylvania 17057

Docketing and Service Section  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Chauncey Kepford  
Judith H. Johnsrud  
Environmental Coalition on Nuclear Power  
433 Orlando Avenue  
State College, Pennsylvania 16801

Judge Reginald L. Gotchy  
Atomic Safety & Licensing Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Mr. Thomas E. Murley, Regional Administrator  
U. S. N. R. C., Region I  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

ANGRY/TMI PIRC  
1037 Maclay Street  
Harrisburg, Pennsylvania 17103

Joan Levin, Esq.  
Pennsylvania Public Utilities  
Commission  
Box 3265  
Harrisburg, Pennsylvania 17120

Jordan D. Cunningham, Esq.  
Fox, Farr and Cunningham  
2320 North 2nd Street  
Harrisburg, Pennsylvania 17110

Ms. Louise Bradford  
TMIA  
1011 Green Street  
Harrisburg, Pennsylvania 17102

Ms. Marjorie M. Aamodt  
R. D. #5  
Coatesville, Pennsylvania 19320

Earl B. Hoffman  
Dauphin County Commissioner  
Dauphin County Courthouse  
Front and Market Streets  
Harrisburg, Pennsylvania 17101

Ellyn R. Weiss  
Harmon, Weiss & Jordan  
20001 S Street  
Suite 430  
Washington, D.C. 20009

Ivan W. Smith, Esq., Chairman  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Gary J. Edles, Chairman  
Atomic Safety & Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

GPU Nuclear Corporation

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General Counsel

Mr. Thomas M. Gerusky, Director  
Bureau of Radiation Protection  
Pennsylvania Department of  
Environmental Resources  
P. O. Box 2063  
Harrisburg, Pennsylvania 17120

Federal Emergency Management Agency  
ATTN: Docket Clerk  
1725 I Street, NW  
Washington, DC 20472

Karin W. Carter, Esq.  
505 Executive House  
P. O. Box 2357  
Harrisburg, Pennsylvania 17120

Harvin I. Lewis  
6504 Bradford Terrace  
Philadelphia, Pennsylvania 19149

Dr. James Lamb  
313 Woodhaven Road  
Chapel Hill, North Carolina 27514

G. F. Trowbridge, Esq.  
Shaw, Pittman, Potts & Trowbridge  
1800 M Street, N.W.  
Washington, D. C. 20036

Dauphin County Office Emergency  
Preparedness  
Court House, Room 7  
Front & Market Streets  
Harrisburg, Pennsylvania 17101

J. S. Wetmore  
Manager, PWR Licensing  
GPU Nuclear Corporation  
100 Interpace Parkway  
Parsippany, New Jersey 07054

Christine N. Kohl, Esq.  
Atomic Safety & Licensing Appeal  
Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Ms. Virginia Southard, Chairman  
Citizens for a Safe Environment  
264 Walton Street  
Lemoyne, Pennsylvania 17043

Ms. Lennie Prough  
U. S. N. R. C. - TMI Site  
P. O. Box 311  
Middletown, Pennsylvania 17057

Dr. David Hetrick  
Professor of Nuclear Energy  
University of Arizona  
Tucson, Arizona 85721

Mr. Robert B. Borsum  
Babcock & Wilcox  
Nuclear Power Generation Division  
Suite 220, 7910 Woodmont Avenue  
Bethesda, Maryland 20814

Mr. David D. Maxwell, Chairman  
Board of Supervisors  
Londonderry Township  
RFD#1 - Geyers Church Road  
Middletown, Pennsylvania 17057

Mr. Gustave A. Linenberger, Jr.  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Regional Radiation Representative  
EPA Region III  
Curtis Building (Sixth Floor)  
6th and Walnut Streets  
Philadelphia, Pennsylvania 19106

Mr. C. W. Smyth  
TMI-1 Licensing Manager  
GPU Nuclear Corporation  
P. O. Box 480  
Middletown, Pennsylvania 17057

Mr. Richard Conte  
Senior Resident Inspector (TMI-1)  
U.S.N.R.C.  
P. O. Box 311  
Middletown, Pennsylvania 17057

Governor's Office of State Planning  
and Development  
ATTN: Coordinator, Pennsylvania  
State Clearinghouse  
P. O. Box 1323  
Harrisburg, Pennsylvania 17120

GPU Nuclear Corporation

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Sheldon J. Wolfe, Esq., Chairman  
Atomic Safety & Licensing Board  
Washington, D.C. 20555

Ms. Jane Perkins  
City Government Center  
10 North Market Square  
Harrisburg, Pennsylvania 17101

Jane Lee  
183 Valley Road  
Etters, Pennsylvania 17319

Bruce Molholt  
Haverford College  
Haverford, Pennsylvania 19041

Norman Aamodt  
R. D. #5, Box 428  
Coatesville, Pennsylvania 19320

Michael McBride, Esq.  
LeBoeuf, Lamb, Leiby & McRae  
Suite 1100  
1333 New Hampshire Avenue, N.W.  
Washington, D.C. 20036