

May 13, 1985

Docket No. 50-289

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

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Dear Mr. Hukill:

SUBJECT: THREE MILE ISLAND, UNIT 1 RESTART CERTIFICATION STATUS

The staff will shortly be providing a final status of the 155 Certification Items necessary to be completed prior to TMI-1 restart. We request that you review the status of these items and identify any changes you have made to plant systems and procedures after the staff certified the items as complete and which deviate from commitments documented on the hearing record. Please state how you documented each change.

Your complete response is requested by May 15, 1985, or provide us with a schedule as to when you could respond.

~~Frank Miraglia~~/for

Hugh L. Thompson, Jr., Director
Division of Licensing

cc: See next page

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Mr. Henry D. Hukill
GPU Nuclear Corporation

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Three Mile Island, Unit 1

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

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

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

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

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

Ms. Marjorie M. Aamodt
Mr. Norman Aamodt
200 North Church Street
Parkesburg, Pennsylvania 19365

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

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

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

Ellyn R. Weiss
Harmon, Weiss & Jordan
2001 S. Street
Suite 430
Washington, DC 20009

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

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

ANGRY/TMI PIRC
1037 Maclay Street
Harrisburg, Pennsylvania 17103

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

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

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

Mr. Marvin I. Lewis
6504 Bradford Terrace
Philadelphia Pennsylvania 19149

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

Beverley Davis
200 Gettysburg Pike
Mechanicsburg, Pennsylvania 17055

James B. Hurst
617 Briarcliff Road
Middletown, Pennsylvania 17057

GPU Nuclear Corporation

-2-

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

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

Richard J. McGoey
Manager, PWR Licensing
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, New Jersey 70754

Ad Crable
Lancaster New Era
8 West King Street
Lancaster, Pennsylvania 17602

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

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

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

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

Jane Lee
183 Valley Road
Etters, Pennsylvania 17319

Dr. James Lamb
313 Woodhaven Road
Chapel Hill, North Carolina 17514

Donald E. Hossler
501 Vine Street
Middletown, Pennsylvania 17057

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

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

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

Mr. Gustava A. Linenberger, Jr.
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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

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

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

Bruce Molholt
Havford College
Haverford, Pennsylvania 19041

SUPPLEMENT TO SAFETY EVALUATION REPORT
TMI ACTION--NUREG-0737 (II.D.1)
RELIEF AND SAFETY VALVE TESTING
THREE MILE ISLAND UNIT 1
DOCKET NO. 50-289

MAY 1985

Introduction

In the TMI-1 SER for NUREG 0737, Item II.D.1, Performance Testing of Relief and Safety Valves, the applicability of the testing performed by the Electric Power Research Institute (EPRI) to the TMI-1 safety valves is discussed. One of the important considerations in the performance of the safety valves is the specific ring setting adjustment.

In a letter (Reference 1) dated October 28, 1983 GPUN committed to adjust the ring setting of the Dresser Model 31739A code safety valves at TMI-1 so that they would be bounded by the EPRI test results (Reference 2). Reference 3 presents the ring settings for the TMI-1 safety valves. The ring settings were based on an analysis performed by Continuum Dynamics Inc. (CDI) through the B&W owners group (see Reference 4).

This supplement to the Safety Evaluation Report in the TMI-1 relief and safety valve testing presents an evaluation of the ring settings based on a review of the CDI report (Reference 4) and the EPRI safety and relief valve test report (Reference 2).

Evaluation of TMI-1 Ring Settings

CDI used the valve dynamics simulation code COUPLE, which they validated against the EPRI safety valve test data (Reference 2), to optimize the ring settings of six B&W nuclear plants for steam discharge, including Three Mile Island Unit 1. The study optimized the ring settings for the expected range of inlet-and back-pressures under steam discharge conditions. The resulting ring settings for TMI-1 are:

Upper ring	-48 notches
Middle ring	-50 notches
Lower ring	+ 8 notches

Reference 2 contains information for five tests that bound the TMI-1 ring settings.

Tests 322 and 324 have middle ring settings of -40 and -60 which bound the TMI-1 middle ring setting of -50. The test backpresssures were 609 psia and 664 psia respectively. Both tests were stable and exhibited full lift, full discharge, and blowdowns of 11.1% and 12.6% respectively.

A comparison between tests 322, 324 and 1011 demonstrated that valve performance is not sensitive to lower ring settings. The lower ring settings were +11, +11 and +5 respectively, which bounded the TMI-1 lower ring setting of +8, and produced similar stable results. Test 320 demonstrated the effect of backpressure on valve lift and discharge. With a 866 psia backpressure, valve lift during Test 320 was 44% of rated and discharge was 64% of rated. However, valve performance was stable.

The results of tests 322, 324, 326 and 1011 demonstrated that full lift, full discharge and stable valve operation is achieved with back pressures between 196 psia and 669 psia which bounds the TMI-1 back pressure of 500 psia.

Conclusion

The ring settings for the TMI-1 safety valves have been shown to produce full lift and stable valve operations for steam discharge conditions by analysis and by comparison with the EPRI test results. Therefore, we find that the information submitted demonstrates the ability of the safety valves to function under expected operating conditions for design basis transients and accidents as defined under NUREG 0737, Item II.D.1.

References

1. J. F. Stolz, NRC from H. D. Hukill, GPU Nuclear, 5211-83-260, October 28, 1983.
2. EPRI PWR Safety and Relief Test Program Safety and Relief Valve Test Report, EPRI NP-2628-SR, December 1982.
3. J. F. Stolz, NRC from H. D. Hukill, GPU Nuclear, 5211-85-2046, March 4, 1985.
4. Safety Valve Dynamic Analysis for Dresser Industries' 31739A and 31759A valves, Rev.1, Prepared by Continuum Dynamics, Inc., for Babcock and Wilcox, C.D.I. Report No. 83-4, December 1983.