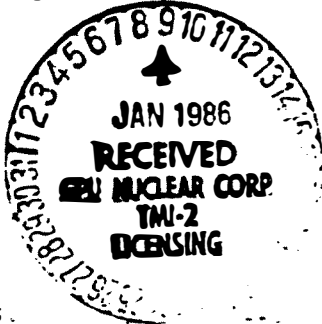




UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DEC 9 1985

86-007



BEST DISTRIBUTION		
RE: NA		
SUBJECT: NRC APPROVAL OF 10CFR 50.61 EXEMPTION		
ASSIGNED TO: JCA/RDW		
RE DATE: NA		
Billard, J.P. Sr.		
Brown, Ad. En.		
Clark, Parale.	✓	✓
Conley, Ad. En.		
Conitt, Ad. En.		
Fuller, Ad. En.		
Harbo, Parale.		
Howard, Parale.	✓	✓
Kilgore, Ad. En.		
Lazarus, Parale.	✓	✓
McIntire, Parale.		
Smith, Sr. En.	✓	✓
Tilton, Ad. En.		
Wagon, Ad. En.	✓	✓
Wentz, Ad. En.		
Standerfer, Ad. En.	✓	✓
WILSON - TMI Ad. En.	✓	✓
McC, Parale.	✓	✓
McC, Communications - c/o E. Neely		
McC, Ad. En.	✓	✓
FAE/EMAS/ADBL	✓	✓

Docket No. 50-320

Mr. F. R. Standerfer
Vice President/Director
Three Mile Island Unit 2
GPU Nuclear Corporation
P. O. Box 480
Middletown, PA 17057

Dear Mr. Standerfer:

Subject: Three Mile Island Nuclear Station Unit 2
Operating License No. DPR-73
Docket No. 50-320
Approval of Exemption from 10 CFR 50.61

We have reviewed your request dated August 27, 1985, for exemption from the requirements of 10 CFR 50.61 regarding steps necessary to protect the Reactor Coolant System (RCS) against pressurized thermal shock events. As discussed in the enclosed Exemption, the lack of pressure in the RCS and essentially ambient core and RCS temperatures, a pressurized thermal shock is not a credible event. Therefore, measures taken to protect against pressurized thermal shock are not warranted. We conclude that your request for exemption from 10 CFR 50.61 is appropriate and acceptable, as stated in the enclosed Exemption issued by the Director of the Office of Nuclear Reactor Regulation. An environmental assessment and a Federal Register notice for this issuance are also enclosed.

Sincerely,

William D. Travers, Director
TMI-2 Cleanup Project Directorate
Office of Nuclear Reactor Regulation

Enclosures:

1. Exemption
2. Environmental Assessment and Notice of Finding of No Significant Environmental Impact
3. Federal Register Notices

cc: See next page.

Mr. F. R. Standerfer

-2-

cc: T. F. Demmitt
R. E. Rogan
S. Linton
W. H. Linton
J. J. Byrne
A. W. Miller
Service Distribution List
(see attached)

TMI-2 SERVICE LIST

Dr. Thomas Murley
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

John F. Wolfe, Esq., Chairman.
Administrative Judge
3409 Shepherd St.
Chevy Chase, MD. 20015

Dr. Oscar N. Paris
Administrative Judge
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Frederick H. Shon
Administrative Judge
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Karin W. Carter
Assistant Attorney General
505 Executive House
P.O. Box 2357
Harrisburg, PA 17120

Dr. Judith H. Johnsrud
Environmental Coalition on
Nuclear Power
433 Orlando Ave.
State College, PA 16801

George F. Trowbridge, Esq.
Shaw, Pittman, Potts and
Trowbridge
1800 M. St., NW.
Washington, D.C. 20036

Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing Appeal Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Secretary
U.S. Nuclear Regulatory Commission
ATTN: Chief, Docketing & Service Branch
Washington, D.C. 20555

Mr. Larry Hochendoner
Dauphin County Commissioner
P.O. Box 1295
Harrisburg, PA 17108-1295

John E. Minnich, Chairperson,
Dauphin County Board of Commissioners
Dauphin County Courthouse
Front and Market Streets
Harrisburg, PA 17101

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

U.S. Environmental Protection Agency
Region III Office
ATTN: EIS Coordinator
Curtis Building (Sixth Floor)
6th & Walnut Streets
Philadelphia, PA 19106

Thomas M. Gecusky, Director
Bureau of Radiation Protection
Department of Environmental Resources
P.O. Box 2063
Harrisburg, PA 17120

Dan Kennedy
Office of Environmental Planning
Department of Environmental Resources
P.O. Box 2063
Harrisburg, PA 17120

Willis Bixby, Site Manager
U.S. Department of Energy
P.O. Box 88
Middletown, PA 17057-0311

David J. McGoff
Division of Three Mile Island Programs
OE-23
U.S. Department of Energy
Washington, D.C. 20545

William Lochstet
104 Davey Laboratory
Pennsylvania State University
University Park, PA 16802

Randy Myers, Editorial
The Patriot
812 Market St.
Harrisburg, PA 17105

Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 220
7910 Woodmount Ave.
Bethesda, MD. 20814

Michael Churchhill, Esq.
PILCOP
1315 Walnut St., Suite 1632
Philadelphia, PA 19107

Linda W. Little
5000 Hermitage DR.
Raleigh, NC 27612

Marvin J. Lewis
6504 Bradford Terrace
Philadelphia, PA 19149

Jane Lee
183 Valley Rd.
Etters, PA 17319

J.B. Liberman, Esquire
Berlack, Israels, Liberman
26 Broadway
New York, NY 10004

Walter M. Cohen, Consumer Advocate
Department of Justice
Strawberry Square, 14th Floor
Harrisburg, PA 17127

Edward O. Swartz
Board of Supervisors
Londonderry Township
RFD #1 Geyers Church Rd.
Middletown, PA 17057

Robert L. Knupp, Esquire
Assistant Solicitor
Knupp and Andrews
P.O. Box P
407 N. Front St.
Harrisburg, PA 17108

John Levin, Esquire
Pennsylvania Public Utilities Comm.
P.O. Box 3265
Harrisburg, PA 17120

Mr. Edwin Kintner
Executive Vice President
General Public Utilities Nuclear Corp.
100 Interpace Parkway
Parsippany, NJ 07054

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

Enclosure 1

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

GENERAL PUBLIC UTILITIES NUCLEAR
CORPORATION

(Three Mile Island Nuclear Station
Unit 2)

Docket No. 50-320

EXEMPTION

I.

GPU Nuclear Corporation, Metropolitan Edison Company, Jersey Central Power and Light Company and Pennsylvania Electric Company (collectively, the licensee) are the holders of Facility Operating License No. DPR-73, which has authorized operation of the Three Mile Island Nuclear Station, Unit 2 (TMI-2) at power levels up to 2772 megawatts thermal. The facility, which is located in Londonderry Township, Dauphin County, Pennsylvania, is a pressurized water reactor previously used for the commercial generation of electricity.

By Order for Modification of License, dated July 20, 1979, the licensee's authority to operate the facility was suspended and the licensee's authority was limited to maintenance of the facility in the present shutdown cooling mode (44 Fed. Reg. 45271). By further Order of the Director, Office of Nuclear Reactor Regulation, dated February 11, 1980, a new set of formal license requirements was imposed to reflect the post-accident condition of the facility and to assure the continued maintenance of the current safe, stable, long-term cooling condition of the facility (45 Fed. Reg. 11292). The license provides, among other things, that it is subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

II.

By letter dated August 27, 1985, the licensee requested exemptions from 10 CFR 50.61 requiring the submission to the U.S. Nuclear Regulatory Commission of projections, analyses, schedules and other steps necessary to protect against pressurized thermal shock events. Specifically, Paragraph (b)(1) of 10 CFR 50.61 requires licensees to submit projected values for Reference Temperature for each weld and plate or forging in the reactor vessel beltline and Paragraph (b)(3) requires an analysis and schedule for implementation of a flux reduction program if the projected values of Reference Temperature are expected to exceed the pressurized thermal shock screening criteria set forth in Paragraph (b)(2) of 10 CFR 50.61. Additionally, the rule requires certain steps be taken if the flux reduction program does not result in reducing the value of the Reference Temperature below that of the pressurized thermal shock screening criteria.

III.

Nuclear plant pressure vessels are fabricated from ferritic steels. A pressure vessel must be designed to maintain fracture toughness of the vessel material for the life of the plant. The pressure vessel of a nuclear plant can be subjected to a pressurized thermal shock (PTS) when an extended cooling transient to the vessel wall is accompanied by primary system pressurization. Under these conditions repeated thermal and pressurization stresses on the internal surfaces of the vessel can cause the formation of cracks. An adequate level of fracture toughness provides assurance that small cracks will not propagate in a "brittle" manner as a result of stresses during an abnormal transient such as a PTS event.

Failure in a brittle manner could fracture the vessel wall and lead to severe failure of the primary pressure boundary in the core area. Due to irradiation damage, older pressure vessels generally have a greater probability of shifting the fracture toughness curve to higher temperatures, thereby increasing the probability of nonductile or brittle vessel failure.

For a pressurized thermal shock to result in a significant nonductile failure the following conditions must be present:

- ° The nuclear plant pressure vessel must exhibit significant loss of fracture toughness through neutron irradiation.
- ° An overcooling transient must occur that is of sufficient duration to cause a steep thermal gradient across the vessel wall and cooling to the low-toughness temperature range.
- ° A flow must be present of sufficient size and be located at a critical vessel beltline location where reduced fracture toughness and high thermal stress exist.
- ° A simultaneous high reactor coolant pressure must be present.

IV.

The staff has reviewed the past and present condition of the damaged TMI-2 reactor and has determined that:

- ° The plant went critical on March 28, 1978 and went into commercial operation on December 30, 1978. The accident at TMI-2 occurred on March 28, 1979. Neutron irradiation damage to the vessel is minimal.
- ° Since the middle of July 1982, the Reactor Coolant System (RCS) has been essentially vented to the reactor building. Since July of 1984, the reactor pressure vessel head has been removed. With the reactor vessel head removed the RCS cannot be pressurized. The licensee has no plans at this time to repressurize the RCS.
- ° As of the middle of September 1985, the incore thermocouple readings range from 70°F to 91°F with an average of 79°F. The average cold leg temperature is 54°F. The incore temperature continues to drop over time. RCS cooling is by natural heat loss to the reactor building ambient atmosphere. No future increase in temperature is expected but rather continued slow cooldown.

With the licensee readying for the commencement of fuel removal, the lack of pressure in the RCS and essentially ambient core and RCS temperatures, a pressurized thermal shock is not a credible event. Therefore, the determination of projected values for Reference Temperature for each weld and plate or forging in the reactor vessel beltline and the development of mitigative actions should the Reference Temperature exceed the screening criteria are not warranted. Undertaking the analyses and other actions required by 10 CFR 50.61 would impose an unnecessary burden and expense on the licensee with no concomitant benefit.

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. The Commission hereby grants an exemption from the requirements of 10 CFR 50.61.

It is further determined that the exemption does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. In light of this determination and as reflected in the Environmental Assessment and Notice of Finding of No Significant Environmental Impact prepared pursuant to

10 CFR 51.21 and 51.30 through 51.32, issued on December 19, 1985, it was concluded that the instant action is insignificant from the standpoint of environmental impact and an environmental impact statement need not be prepared.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert M. Bernero, Acting Director
Office of Nuclear Reactor Regulation

Effective Date: December 30, 1985
Dated at Bethesda, Maryland
Issuance Date: December 30, 1985

UNITED STATES NUCLEAR REGULATORY COMMISSION
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
DOCKET NO. 50-320
ENVIRONMENTAL ASSESSMENT AND NOTICE OF FINDING
OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is planning to issue an Exemption relative to the Facility Operating License No. DPR-73 issued to General Public Utilities Nuclear Corporation (the licensee), for operation of the Three Mile Island Nuclear Station, Unit 2 (TMI-2), located in Londonderry Township, Dauphin County, Pennsylvania.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The action being considered by the Commission is an exemption from assessments, analyses and other requirements of 10 CFR 50.61 for protection against pressurized thermal shock events.

Specifically 10 CFR 50.61 requires the licensee to submit to the U.S. Nuclear Regulatory Commission projected values for reference temperature for each weld and plate or forging in the reactor vessel beltline and an analysis and schedule for implementation of a flux reduction program if the projected values of reference temperature are expected to exceed the pressurized thermal shock criterion set forth in Paragraph (b)(2) of 10 CFR 50.61.

The Need for the Action: Given the lack of pressurization of the Reactor Coolant System (RCS) and the low core and RCS temperatures, pressurized thermal shock is not a credible event. Accordingly, analyses to determine the potential for and actions to protect against pressurized thermal shock for each weld and plate or forging in the reactor vessel beltline are not warranted. Undertaking the analyses and other actions required by 10 CFR 50.61 would impose an unnecessary burden and expense on the licensee with no concomitant benefit.

Environmental Impacts of the Proposed Actions: The staff has evaluated the subject exemption and concludes that there are no significant radiological or nonradiological impacts to the environment as a result of this action. The exemption removes the Commission's requirement to conduct analyses and make assessments of pressurized thermal shock events.

Alternate to this Action: Since we have concluded that there is no significant environmental impact associated with the subject Exemption, any alternatives to this change will have either no significant environmental impact or greater environmental impact. This would not reduce significant environmental impacts of plant operations and would result in the application of unnecessary regulatory requirements.

Agencies and Persons Consulted: The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

Alternate Use of Resources: This action does not involve the use of resources not previously considered in connection with the Final Programmatic Impact Statement for TMI-2 dated March 1981.

Finding of No Significant Impact: The Commission has determined not to prepare an environmental impact statement for the subject Exemption. Based upon the foregoing environmental assessment, we conclude that this action will not have a significant effect on the quality of the human environment.

For further details with respect to this action see; (1) Letter from F. R. Standerfer, GPUNC, to B. J. Snyder, USNRC, 10 CFR 50.61 Exemption Request, dated August 27, 1985.

The above documents are available for inspection at the Commission's Local Public Document Room, 1717 H. Street, N.W., Washington, DC, and at the Commission's Local Public Document Room at the State Library of Pennsylvania, Government Publications Section, Education Building, Commonwealth and Walnut Streets, Harrisburg, Pennsylvania 17126.

FOR THE NUCLEAR REGULATORY COMMISSION



William D. Travers, Director
TMI-2 Cleanup Project Directorate
Office of Nuclear Reactor Regulation

ENCLOSURE 3



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

December 13, 1985

Docket No. 50-320

Docketing and Service Section
Office of the Secretary of the Commission

**SUBJECT: Environmental Assessment and Notice of Finding of
No Significant Environmental Impact**

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies () of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- Notice of Availability of Applicant's Environmental Report.
- Notice of Proposed Issuance of Amendment to Facility Operating License.
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Other: Environmental Assessment

William L. Travers, Director
T-1-2 Cleanup Project Directorate
Office of Nuclear Reactor Regulation

Enclosure:
As Stated



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

December 30, 1985

Docket No. 50-320

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: Approval of Exemption from 10 CFR 50.61

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies () of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- Notice of Availability of Applicant's Environmental Report.
- Notice of Proposed Issuance of Amendment to Facility Operating License.
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Other: Exemption

William Travers
William D. Travers, Director
TMI-2 Cleanup Project Directorate
Office of Nuclear Reactor Regulation

Enclosure:
As Stated