

Distribution:
 Docket No. 50-320
 NRC PDR
 Local PDR
 DCS
 TMI HQ R/F
 TMI Site R/F
 BJSnyder
 WTravers
 MTMasnik
 RAWeller
 PGrant
 RCook
 CCowgill
 IE (5)
 TBarnhart (4)
 LSchneider
 JSaltzman
 ACRS (16)
 RDiggs, LFMB
 Eisenhut/Denton
 ARosenthal, ASLAB
 RLazo, ASLAP
 SECY
 M-town Office

August 8, 1985

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
 Technical Specification Change Request 46
 Exemption Request from 10 CFR 50, Appendix A
 General Design Criteria 34 and 37

The Nuclear Regulatory Commission has issued the enclosed Amendment of Order and Exemptions from 10 CFR 50, Appendix A, General Design Criteria 34 and 37 effective September 23, 1985.

The Amendment of Order which modifies sections of the Proposed Technical Specifications (PTS) was requested by General Public Utilities Nuclear Corporation in a letter dated November 6, 1984. Other correspondence related to this request includes a request for exemptions from the requirements of 10 CFR 50 General Design Criteria 34 and 37 in a letter dated March 26, 1985 and additional information which was supplied in a letter dated March 27, 1985 to support the changes requested in the PTS.

Since the February 11, 1980 Order imposing the Proposed Technical Specifications is currently pending before the Atomic Safety and Licensing Board, the staff will be advising the Licensing Board of this Amendment of Order through a Notice of Issuance of Amendment of Order and a Motion to Conform Proposed Technical Specifications in Accordance Herewith.

8508140469 850808
 PDR ADOCK 05000324
 P PDR

WDP subject to a number of proposed changes

OFFICE	TMIPD:NRR	SL:TMIPD:NRR	PD:TMIPD:NRR	ELD	DD:NRR	D:NRR
SURNAME	RLa;bg	RAWeller	BJSnyder	W.D. Katon	DGEisenhut	HRDenton
DATE	7/8/85	7/9/85	7/9/85	7/17/85	7/1/85	7/23/85

Mr. F. R. Standerfer

-2-

Federal Register Notices for the discussed issuances are enclosed. Copies of the related Safety Evaluation and revised pages for the Proposed Technical Specifications are also enclosed.

Sincerely,

Original signed by
B. J. Snyder

Bernard J. Snyder, Program Director
Three Mile Island Program Office
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment of Order
- 2. Safety Evaluation
- 3. Proposed Technical Specification
Page Changes
- 4. Exemption from 10 CFR 50, Appendix A,
GDC 34 and 37
- 5. Notice of Environmental Assessment and
Finding of No Significant Impact
- 6. Federal Register Notices

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

OFFICE ▶	.....	.....	.....	.....	.....	.....
SURNAME ▶	.....	.....	.....	.....	.....	.....
DATE ▶	.....	.....	.....	.....	.....	.....

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 H. 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. Gerusky, 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
NE-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 Woodmont Ave.
Bethesda, MD. 20814

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

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

Marvin I. Lewis
6504 Bradford Terrace
Philadelphia, PA 19149

Jane Lee
183 Valley Rd.
Etters, PA 17319

J.B. Liberman, Esquire
Berlack, Israel's, Liberman
26 Broadway
New York, NY 10004

Walter W. 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

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of)	
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION	)	Docket No. 50-320
(Three Mile Island Nuclear Station Unit 2))	

AMENDMENT OF ORDER

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.

II.

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).

Although these requirements were imposed on the licensee by an Order of the Director of Nuclear Reactor Regulation, dated February 11, 1980, the TMI-2 license has not been formally amended. The requirements are reflected in the proposed Recovery Mode Technical Specifications (PTS) presently pending before the Atomic Safety and Licensing Board. The revisions that are the subject of this order do not give the licensee authorizations that may be needed to undertake specific cleanup activities. These activities will require separate consideration by the staff per Section 6.8.2 of the PTS, individual staff safety evaluations and/or licensing actions as appropriate. Hereafter in this Amendment of Order, the requirements in question are identified by the applicable Proposed Technical Specification.

III.

By a letter dated November 6, 1984, General Public Utilities Nuclear Corporation (GPUNC) proposed changes to the Proposed Technical Specifications (PTS) for Three Mile Island Unit 2 (TMI-2) to reflect current plant conditions.

The staff has reviewed the licensee's proposed changes which can be grouped into the following categories:

- (1) Modifications to the existing Limiting Conditions for Operation (LCO) that were proposed to more correctly state what systems or equipment are necessary based on the present status of TMI-2. The proposed changes would delete the LCO that the Standby Reactor Coolant System

Pressure Control System, Mini-Decay Heat Removal System, the Decay Heat Removal System pumps and its recirculation pathways and the Nuclear Service Closed Cooling System be operable. The proposed changes would also modify the LCO for the required minimum amount of borated water in the Borated Water Storage Tank from 100,000 gallons to 390,000 gallons and the number of operable flow paths from the BWST from one to two.

- (2) New Limiting Conditions for Operation were also proposed to more correctly reflect what systems or equipment are necessary based on the present status of TMI-2. The proposed LCO would require that dedicated on-site equipment for a Reactor Building Sump Recirculation System be operable. The proposed LCO would also require that two flow paths downstream from the BWST be operable.
- (3) Revisions to the Bases were proposed that reflect corresponding changes in the Limiting Conditions for Operation.

Exemptions from 10 CFR 50, Appendix A, Design Criterion 34 and Criterion 37 were also requested because of some of the subject deletions and alterations to the PTS. Other changes proposed by the licensee were applicable to the Recovery Operations Plan (ROP) and are addressed in separate correspondence. The staff concludes that these changes are appropriate to more accurately reflect the current conditions and requirements at TMI-2.

The staff's safety assessment of the foregoing, which concludes that the proposed changes are acceptable from the standpoint of public health and safety, is set forth in the concurrently issued Safety Evaluation. Since the February 11, 1980 Order imposing the Proposed Technical Specifications is currently pending before the Atomic Safety and Licensing Board, the staff will be advising the Licensing Board of this Amendment of Order through a Notice of Issuance of Amendment of Order and a Motion to Conform Proposed Technical Specifications in Accordance Herewith.

- It is further determined that the modification 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 Impact prepared pursuant to 10 CFR 51.2 and 51.30 through 51.32 issued concurrently herewith, it was concluded that the action is insignificant from the standpoint of environmental impact and that an environmental impact statement need not be prepared.

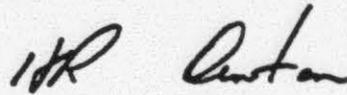
IV.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, the Director's Order of February 11, 1980, is hereby revised to incorporate the deletions, additions, and modifications set forth in Enclosure 3 hereto. This Amendment of Order shall be effective on September 23, 1985.

For further details with respect to this action, see (1) Letter to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, Technical Specification Change Request No. 46 dated November 6, 1984, (2) Letter to F. R. Standerfer, GPUNC, from B. J. Snyder, USNRC, NRC Questions on Technical Specification Change Request No. 46, dated February 6, 1985, (3) Letter to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, Technical Specification Change Request No. 46 (responses to NRC questions) dated March 27, 1985, (4) Letter to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, General Design Criteria 34 and 37, dated March 26, 1985, and (5) The Director's Order of February 11, 1980.

All the above documents are available for inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, DC 20555, 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



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

GPU NUCLEAR CORPORATION

METROPOLITAN EDISON COMPANY

PENNSYLVANIA ELECTRIC COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-320

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 2

INTRODUCTION

By letter dated November 6, 1984, GPU Nuclear Corporation (GPUNC) requested the approval of changes to modify the Proposed Technical Specifications (PTS) of Operating License No. DPR-73. Additional information supporting this request was provided in a letter dated March 27, 1985. In another letter dated March 26, 1985, GPUNC also requested exemptions from 10 CFR 50, Appendix A, General Design Criteria (GDC) 34 and 37. These exemptions are required to support the requested changes to the PTS. The primary purpose of these changes and exemptions is to more accurately reflect the present condition and requirements of the TMI-2 reactor.

DISCUSSION

(A) Limiting Conditions for Operation (LCO)

Section 3.1.1 Boration Control, Borated Cooling Water Injection

The licensee has proposed to modify the PTS to require two operable borated water injection systems consisting of; (1) two operable flow paths downstream from the Borated Water Storage Tank (BWST) and common dropline, and (2) dedicated on-site equipment for a Reactor Building Sump Recirculation System. In addition, the borated water inventory of the BWST is to

be maintained above 390,000 gallons at a boron concentration of between 4350 and 6000 ppm. (The lower limit of boron concentration has been changed from 3500 ppm to 4350 ppm by a subsequent PTS change request submitted by the licensee and approved by the staff.) Presently the PTS requires that; the Standby Reactor Coolant System Pressure Control System (SPC), the Mini-Decay Heat Removal System (MDHRS), and the Decay Heat Removal System (DHRS) pumps and its recirculation pathways be operable to maintain RC inventory and boration level.

The present and future decay heat generation by the core is very low (less than 12 Kw thermal). Loss-to-ambient cooling, the present method of decay heat removal since January 1981, is adequate to maintain reactor coolant temperature below 170°F even for the limiting plant conditions, i.e., lowest RCS water level at El. 314' (bottom of the hot leg nozzles) and an ambient reactor building air temperature of 116°F (the predicted maximum temperature reached if no containment purge flow or cooling is assumed during peak summer conditions). Further, since the reactor will be maintained in a sub-critical, shutdown condition, there are no additional emergency core cooling requirements beyond removal of decay heat. Based on these considerations for decay heat removal and emergency core cooling functions, no active, forced borated water recirculation systems are required as long as the core remains covered for loss-to-ambient cooling. As discussed later in this document, this function of the MDHRS and the DHRS pumps and pathway can be replaced by the gravity feed from BWST and the reactor building sump recirculation system. The function of the Standby Reactor Coolant Pressure Control System (SPC) is to maintain the

RCS in a water-solid condition in order to promote long term natural circulation for core cooling. This function of the SPC is no longer necessary now that adequate ambient cooling has been demonstrated with the reactor vessel head removed.

Currently, the RCS is depressurized with the reactor vessel head removed. During the remainder of the recovery, there are no plans to reinstall the head or to repressurize the RCS. In an earlier Amendment of Order (December 19, 1984), the PTS were modified to state that the RCS will be kept open to the atmosphere and the need for a Safety Limit on RCS pressure was eliminated. The deletion of the RCS pressure control function is, therefore, appropriate.

Throughout the defueling operation, core cooling and criticality control are facilitated by maintaining borated water coverage above the core. For the purpose of this evaluation, this level is assumed to be the bottom of the reactor vessel nozzles (El. 314'). To maintain this RCS inventory during a loss-of-coolant event, the licensee has proposed to modify the PTS to require the operability of gravity feed from the BWST, and in the long term, the recirculation of the borated reactor building basement water into the RCS. The following are pertinent considerations in determining the capability of the proposed systems to maintain RCS inventory.

The only credible leakage path from the reactor vessel below the nozzles (E1. 314') is through the postulated failure of the incore instrument tubes which penetrate the bottom of the vessel. We have considered the credible causes of failure of these incore instrument tubes and the resulting reactor coolant leakage rates. The worst case potential leak rate resulting from a load drop onto the reactor vessel breaching the incore instrument tubes has also been evaluated (Safety Evaluation for Heavy Load Handling over the TMI-2 Reactor Vessel, May 2, 1985). The bounding leakage rate postulating the breaking of all 52 incore instrument tubes is approximately 20 gpm. Other potential causes of incore instrument tube failures have also been considered, e.g., corrosion failures. However, it is unlikely that such other causes of failure will result in a leak rate higher than the 20 gpm assumed for the simultaneous break of all 52 tubes. It is not expected that heavy load handling with potential consequences more severe than those analyzed in the Safety Evaluation for Heavy Load Handling will be required during the remaining defueling operation. Should such requirement arise, the licensee must submit a safety analysis for staff review and approval prior to the operation. It is expected that other conditions such as pathway restrictions will be imposed such that potential RCS leak rate due to load drop accident will still be kept below the 20 gpm estimated.

The licensee's analyses show that substantially greater flow rates to refill the RCS are available from systems required to be operable. Initially, following the failure of incore instrument tubes, gravity flow from the BWST exceeding 600 gpm will be available. As the BWST inventory decreases, the available flow rate is estimated to remain at over 140 gpm when the head differential is reduced to 2 feet (from 45 feet initially). With the postulated bounding leak rate of 20 gpm, the BWST inventory available for gravity feed (approximately 300,000 gallons) would provide sufficient makeup for over 10 days. This should provide sufficient time to set up the Reactor Building Sump Recirculation System (RBSRS) to recirculate the RCS leakage from the reactor building sump and replenish the RCS inventory. The capacity of the RBSRS (two submersible pumps with a capacity of 200 gpm each) is substantially greater than the credible RCS leakage rate.

From the above considerations, we conclude that the proposed methods of borated water injection will exceed the credible RCS leakage rate in the event of a LOCA and therefore the function of the higher capacity DHRS pumps (at about 3,000 gpm) can be replaced by the BWST gravity feed and the RBSRS without adversely affecting the health and safety of the public.

For a postulated loss of both on-site and off-site AC power, we concur with the licensee's reliability study that AC power can be restored within five hours. If the maximum credible reactor coolant system leakage occurs at the same time, the loss of RC inventory during the five hours would be about 6,000 gallons which corresponds to a decrease of RCS level of about

2-1/2 feet. Assuming an additional RCS level drop of 1 foot prior to leak detection and an additional hour for the valves to actuate gravity feed from the BWST, the maximum drop of RCS level prior to gravity feed from BWST is about 4 ft. Since there is a minimum margin of about 7 ft. between the water level in the IIF and the bottom of the reactor vessel nozzles prior to the postulated RCS leakage, there should be sufficient time for the initiation of gravity feed to replenish the RCS inventory.

All components of the RBSRS will not be installed but will be available onsite on a standby basis. The electrical connections, however, are already installed in the reactor building. Redundant mechanical components of the recirculation system such as pumps, hoses and controls are available and the pumps will be periodically tested as required in the concurrently issued modifications to the Recovery Operations Plan. Assuming maximum credible RCS leakage through the failed incore instrument tubes, reactor building sump recirculation would not be required for over 10 days. This should allow sufficient time for the licensee to secure the highly borated water which may be necessary to increase the sump water boron concentration to above 4350 ppm prior to recirculation into the RCS.

The modified PTS requires two operable flow paths downstream from the BWST common dropline. These flow paths are available from several piping system connections. The availability of these redundant flow paths and associated active components (i.e., valves) meets the single failure criteria for

active components required to initiate flow. Upstream of the BWST common dropline, the single valve is maintained in a locked open position and requires no activation for borated water injection.

Based on the above considerations, we conclude that there is reasonable assurance that the proposed borated water injection systems will provide adequate reactor coolant inventory control in the event of a LOCA.

Reactivity control (i.e., maintenance of a subcritical condition in the core) is assured by maintaining RCS inventory for core coverage and by maintaining the RCS boric acid concentration within the PTS limits. During the gravity feed phase of borated water injection, providing boric acid concentrations within the proper limits is assured by the boric acid concentration requirements of the BWST inventory.

The maximum inventory of water in the basement sump prior to RCS leak is limited by administrative procedure to less than 70,000 gallons. If the boron concentration of the sump water when mixed with the RC leakage is less than 4350 ppm, addition of highly borated water, mixing and sampling would be necessary prior to recirculating the sump water mixture back to the RCS. We have reviewed the licensee's study (RCS Recirculation Make-up Capability, Revision 2, October 1984) and conclude that there is reasonable assurance that sources of highly borated water will be available by the time when recirculation is necessary. Plant procedures have been established for the reactor building sump sampling, introduction of highly

borated water, and adequate mixing prior to recirculation into the RCS. These procedures provide the required assurance that recirculation would not become a pathway for boron dilution.

Based on the above considerations, we conclude that the functions of the borated water injection systems will be enhanced by the proposed PTS in that it more accurately reflects that status of the RCS. In the event of RCS leakage through incore instrument tube failure, the initial response for RCS inventory control would be through the passive gravity feed flow path from the BWST. The proposed PTS requires an increased BWST inventory (from 100,000 gallons to 390,000 gallons) and two operable flow paths for gravity feed. For long term RCS recirculation, the PTS requires the availability of the reactor building sump recirculation system whose components will be maintained and tested. We conclude that borated water injection systems required by the PTS would provide better assurance for adequate RCS inventory control than the presently relied upon decay heat removal pumps and pathways. The decay heat removal pumps and pathways presently contain contaminated accident generated water. The entire pathway has not been tested since the accident (because of the contaminated water in the system) and there is no assurance that there would be no leakage spreading the contamination if the decay heat removal pumps and pathways were used for RCS inventory control. We note, however, even though the DHRS has been deleted from the PTS requirements, the licensee still intends to maintain the DHRS pumps and pathways although its operability will not be required for RCS inventory control.

Based on the above considerations, the staff concludes that the proposed gravity feed system and RBSRS should be able to provide the adequate RCS inventory and boron concentration control functions in the event of RCS leakage. The staff, therefore, concurs with the requested change.

Section 3.7.3.1 Nuclear Services Closed Cooling System (NSCCS)

The NSCCS provides cooling to several systems which originally had safety functions. These systems include the Spent Fuel Coolers, Reactor Building Spray Pump and Motor, Make-up Pump and Motor, Reactor Building Emergency Cooling Booster Pump Motor, and the Mini-Decay Heat Removal System (MDHRS). The function of the Spent Fuel Cooler is no longer necessary to maintain acceptable spent fuel pool temperature when spent fuel is stored since loss-to-ambient cooling is adequate for cooling in the reactor vessel and this method should be also acceptable for fuel canisters temporarily stored in the pool. The original function of the Reactor Building Spray Pump and the Reactor Building Emergency Cooling Booster Pump is to reduce the building pressure and airborne concentration of radioactive iodine during a LOCA. Because the RCS is no longer pressurized and the decay heat level of the fuel is less than 12 Kw, there is no potential for elevated building atmosphere pressure or airborne radioactive iodine release and those components no longer have a safety function. The safety functions of the Make-up Pump and the MDHRS can be replaced by BWST gravity feed and the RBSRS as discussed in Section 3.1.1. The staff, therefore, concurs with the request to delete the PTS requirements associated with the NSCCS.

Section 3.7.3.2 Decay Heat Closed Cooling Water System (DHCCWS)

The function of the DHCCWS is to provide cooling to the DHRS when that system is needed for pump cooling during LOCA conditions. Discussions in Section 3.1.1 show that adequate decay heat removal is provided by loss-to-ambient when RCS inventory is maintained. RCS inventory will be maintained during a LOCA initially by gravity feed from the BWST and, in the long term, by the reactor building sump recirculation system. Since the DHRS is no longer necessary as discussed in Section 3.1.1, its cooling water system is also not required and the staff concurs with the request to delete the PTS requirements on the DHCCWS.

Section 3.7.3.3 Mini-Decay Heat Removal System (MDHRS)

The safety function of the MDHRS is to remove decay heat by forced circulation cooling. As discussed in the staff's discussion in Section 3.1.1, forced circulation core cooling is no longer required. The staff concurs with the request to delete the PTS requirements on the MDHRS.

(B) Bases - The following bases sections were modified or deleted in accordance with the above discussions.

Section 3/4.1.1 Boration Control and Borated Cooling Water Injection

Section 3/4.7.3 Closed Cycle Cooling Water System

Section 3/4 7.3.1 Nuclear Services Closed Cycle Cooling System

Section 3/4 7.4 Nuclear Service River Water System

Modifications to the PTS resulting from the above discussion are attached to this SER (see Enclosure 3 for the modified pages). The acceptability of these modifications is discussed in section (A) above.

ENVIRONMENTAL CONSIDERATIONS

We have determined that the changes do 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. Having made this determination, and, as reflected in the Environmental Assessment and Notice of Finding of No Significant Environmental Impact prepared pursuant to 10 CFR 51.2 and 51.30 through 51.32, issued concurrently herewith, we have further concluded that the change involves an action which is insignificant from the standpoint of environmental impact and that an environmental impact statement need not be prepared in connection with the issuance of this action.

CONCLUSION

Based upon our review of the above discussed changes as modified, the staff finds that the requested revision of the proposed Technical Specifications is acceptable.

We have also concluded, based on the considerations discussed above, that:

- (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and

- (2) such activities will be conducted in compliance with the Commission's regulations and the implementation of this change will not be inimical to the common defense and security or to the health and safety of the public.

Enclosure 3

PROPOSED TECHNICAL SPECIFICATION CHANGES

FACILITY OPERATING LICENSE NO. DPR-73

DOCKET NO. 50-320

Replace the following pages of Appendix "A" Proposed Technical Specifications with the enclosed pages as indicated. The revised pages contain vertical lines indicating the area of change.

3.1-1
3.7-1
B 3/4 1-1
B 3/4 7-1

LIMITING CONDITIONS FOR OPERATION

3.1 WATER INJECTION COOLING AND REACTIVITY CONTROL SYSTEMS

3.1.1 BORATION CONTROL

BORATED COOLING WATER INJECTION

3.1.1.1 The following systems, capable of injecting borated cooling water into the Reactor Coolant System, shall be OPERABLE with:

- a. Two operable flowpaths downstream from the Borated Water Storage Tank and common drop line.
- b. Dedicated on-site equipment for a Reactor Building Sump Recirculation System:
- c. The BWST shall contain at least 390,000 gallons of borated water except as changed per procedures approved pursuant to Specification 6.8.2 at a minimum temperature of 50 degrees Fahrenheit and a boron concentration of between 4350 and 6000 ppm.

APPLICABILITY: RECOVERY MODE

ACTION:

- a. With one flowpath from the BWST inoperable, restore to operable status or establish an alternate flowpath within 72 hours.
- b. With both flowpaths from the BWST inoperable, suspend all operations involving CORE ALTERATIONS and/or the Reactor Coolant System and restore the inoperable flowpaths to OPERABLE status within 72 hours.
- c. With the dedicated Reactor Building Sump Recirculation System inoperable, restore to operable status within 7 days.
- d. With the BWST water volume or boron concentration out-of-specification, suspend all operations involving CORE ALTERATIONS and/or the Reactor Coolant System and restore the BWST to specification within 72 hours.

LIMITING CONDITIONS FOR OPERATION

3.7 PLANT SYSTEMS

3.7.1 FEEDWATER SYSTEM

Deleted by Amendment of Order Dated April 1, 1982.

3.7.2 SECONDARY SERVICES CLOSED COOLING WATER SYSTEM

Deleted by Amendment of Order Dated April 1, 1982.

3.7.3 CLOSED CYCLE COOLING WATER SYSTEM

NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM

3.7.3.1 Deleted.

DECAY HEAT CLOSED COOLING WATER SYSTEM

3.7.3.2 Deleted.

MINI DECAY HEAT REMOVAL SYSTEM (MDHRS)

3.7.3.3 Deleted.

3.4.1 WATER INJECTION COOLING AND REACTIVITY CONTROL SYSTEMS

BASES

3/4.1.1 BORATION CONTROL AND BORATED COOLING WATER INJECTION

The limitation on minimum boron concentration ensures that the core will remain subcritical under all credible conditions which may exist during the long-term cooling mode. The maximum boron concentration is provided to ensure that precipitation of boron will not occur in the RCS and thereby cause possible flow restrictions. The specification requires the OPERABILITY of systems capable of injecting borated cooling water into the RCS within the required boron concentration limits. The required volume of borated water in the BWST provides sufficient water to keep the core covered in the event of an unisolatable leak from the reactor vessel. The specified water volume is sufficient to provide a continuous supply of water to the vessel during the interim period before the recirculation flowpath from the Reactor Building Sump can be placed in service. Minimum boron concentration limits have been provided for the Refueling Canal (deep end) and Spent Fuel Storage Pool "A" to provide assurance that any event involving these volumes of water will not result in a margin of safety less than that analyzed for the reactor vessel.

3/4.1.3 CONTROL ASSEMBLIES

All full-length control rods were fully inserted as a result of the reactor trip on March 28, 1979. This Specification has been deleted since the reactor vessel head has been removed.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 FEEDWATER SYSTEM

Deleted by Amendment of Order Dated April 1, 1982.

3/4.7.2 SECONDARY SERVICES CLOSED COOLING WATER SYSTEM

Deleted.

3/4.7.3 CLOSED CYCLE COOLING WATER SYSTEM

3/4.7.3.1 NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM

Deleted.

3/4.7.3.2 DECAY HEAT CLOSED COOLING WATER SYSTEM

Deleted.

3/4.7.4 NUCLEAR SERVICE RIVER WATER SYSTEM

The Nuclear Service River Water System uses river water to cool the diesel generators. Therefore, it must be OPERABLE also. This system rejects its heat to the river as the Ultimate Heat Sink.

3/4.7.6 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken in the event of flood conditions. The limit of elevation of 301 ft. Mean Sea Level USGS datum is the elevation at which facility flood control measures are required to be taken to provide protection to Safety Related equipment.

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of)	
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION	)	Docket No. 50-320
(Three Mile Island Nuclear Station Unit 2))	

EXEMPTIONS

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). This license provides, among other things, that it is subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

II.

On November 6, 1984, General Public Utilities Nuclear Corporation (GPUNC) submitted Technical Specification Change Request No. 46. This correspondence contained a request to delete the Decay Heat Removal System from the TMI-2 Proposed Technical Specifications. The staff responded to this and other change requests with a list of questions forwarded on February 6, 1985. The licensee was asked to consider whether exemptions from 10 CFR 50, Appendix A, General Design Criteria (GDC) 34, 35, 36 and 37 were appropriate. GPUNC responded in correspondence dated March 27, 1985 which stated that exemptions from GDC 35 and 36 were not required. However, an exemption request from GDC 34 and 37 was requested by GPUNC in a letter dated March 26, 1985. The staff is issuing the requested exemptions as discussed herein.

III.

10 CFR 50, Appendix A, GDC 34 requires that a system to remove residual heat shall be provided. The purpose shall be to transfer fission product decay heat and other residual heat from the core at such a rate that acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded.

Since January 1981, the TMI-2 core has been cooled passively via the loss-to-ambient mode. At present the decay heat level is less than 12 Kw thermal with an associated maximum core temperature of less than 100°F. The maximum temperature that is credible while in this mode (no forced circulation) is less than 170°F assuming water level is lowered to the

bottom of the hot leg nozzles. At this temperature sufficient buffer is still maintained between the maximum anticipated core temperature and the temperature at which the water in the vessel would boil (212°F). Therefore, the staff concludes that since the current loss-to-ambient mode is effective for all anticipated core temperatures, the requirement to have a residual heat removal system (GDC 34) is no longer necessary at TMI-2. On the other hand, portions of the residual heat removal system at TMI-2 still contain radioactive contamination resulting from the accident. Operation of the system could result in the spread of radioactive contamination. In addition, the requirement to maintain an operable residual heat removal system would result in an unnecessary burden for maintenance, surveillance and testing and could result in unnecessary radiation exposures to the workers. Accordingly, an exemption for GDC 34 is warranted.

The licensee has proposed in Technical Specification Change Request No. 46 that a Reactor Building Sump Recirculation System (RBSRS) be used for emergency core cooling at TMI-2. The system would only be installed in the event of an unisolable leak in the RCS. Licensee calculations, which are supported by the staff in an Amendment of Order concurrently issued with this exemption, conclude that at least 10 days are available between the detection of the worst-case credible leak and when the RBSRS would be required. This gives ample time for the system to be put in service. As stated in the referenced Amendment of Order, the staff has accepted the RBSRS and its proposed method of use. This acceptance included Recovery Operations Plan requirements for testing the operability of major system

components on a regular basis (see the staff's Safety Evaluation Report approving the modifications to the Proposed Technical Specifications related to Borated Cooling Water Injection). GDC 37 requires the testing of the emergency core cooling system including the operability of the system as a whole and the performance of the full operational sequence. Since the staff has accepted the installation of the RBSRS in the reactor building only in the event of an unisolable leak in the RCS, the testing of the system according to GDC 37 is not necessary. In addition, since the reactor building basement still contains accident generated contaminated water, testing of a basement sump recirculation system in a full operational sequence could result in the spread of contamination and radiation exposures to the workers. Accordingly, an exemption from GDC 37 is warranted.

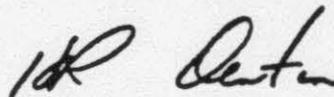
IV.

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 exemptions from the requirements of 10 CFR 50, Appendix A General Design Criteria 34 and 37 in accordance with the licensee's request dated March 26, 1985.

It is further determined that the exemptions do 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 51.2 and 51.30 through 51.32, issued concurrently herewith, 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



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Effective Date: September 23, 1985
Dated at Bethesda, Maryland
Issuance Date: August 8, 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 concurrently with an Amendment of the Director of the Office of Nuclear Reactor Regulation's Order an Exemption relative to 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 the issuance of exemptions from the requirements of 10 CFR 50, Appendix A, General Design Criteria (GDC) 34 and 37. These criteria state requirements for residual heat removal system capabilities and for testing emergency core cooling systems, respectively. On November 6, 1984, the licensee submitted Technical Specification Change Request No. 46. This correspondence contains a request to delete the Decay Heat Removal System from the TMI-2 Proposed Technical Specifications (PTS). Review of the PTS by staff resulted in a list of questions forwarded to the licensee on February 6, 1985. In response to those questions, the licensee considered that exemptions to GDC 34 and 37 were appropriate. These exemptions were requested in the licensee's letter dated March 26, 1985.

8508140501 850808
PDR ADOCK 05000320
P PDR

The Need for the Action: The exemptions are warranted because of the successful use of the loss-to-ambient cooling mode at TMI-2 for residual heat removal. This is a passive method for removing decay heat and therefore it is very stable. The licensee also proposed in Technical Specification Change Request 46 to have available a Reactor Building Sump Recirculation System (RBSRS) to be used in the case of an unisolable leak.

When considering the current status of the TMI-2 core and the amount of time that would be available to install the RBSRS, an in-place, routinely tested emergency core cooling is not necessary. The licensee has proposed to test the major system components separately to ensure that if they are needed, they will function properly. In-place testing is not desirable because of the risk of spread of radioactive contamination and because of radiation exposures to the workers.

Environmental Impacts of the Proposed Actions: The staff has evaluated the subject exemptions and concluded that they will not result in significant increases in airborne or liquid radioactivity inside the reactor building or in corresponding releases to the environment. There are also no non-radiological impacts to the environment as a result of this action.

Alternative to this Action: Since we have concluded that there is no significant environmental impact associated with the subject exemptions, 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 overly restrictive regulatory requirements when considering the unique conditions of TMI-2.

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

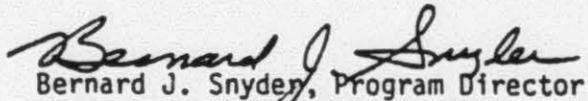
Alternate Use of Resources: This action does not involve the use of resources not previously considered in connection with the Final Programmatic Impact Statement for TMI-2 dated March 1981.

Finding of No Significant Impact: The Commission has determined not to prepare an environmental impact statement for the subject exemptions. 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 to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, Technical Specifications Change Request No. 46, dated November 6, 1984, (2) Letter to F. R. Standerfer, GPUNC, from B. J. Snyder, USNRC, NRC Questions on Technical Specifications Change Request No. 46, dated February 6, 1985, (3) Letter to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, Technical Specifications Change Request No. 46 (response to NRC questions), dated March 27, 1985, and (4) Letter to B. J. Snyder, USNRC, from F. R. Standerfer, GPUNC, General Design Criteria 34 and 37, dated March 26, 1985.

The above documents are available for inspection at the Commission's Public Local 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


Bernard J. Snyder, Program Director
Three Mile Island Program Office
Office of Nuclear Reactor Regulation

ENCLOSURE 6



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

July 31, 1985

Docket No. 50-320

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: Three Mile Island Nuclear Station, Unit 2
Operating License No. DPR-73
Environmental Assessment and Notice of Finding of No
Significant 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 and Notice of Finding of No Significant Impact

Bernard J. Snyder
Bernard J. Snyder, Program Director
Office of Nuclear Reactor Regulation

Enclosure:
As Stated



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

Docket No. 50-320

August 8, 1985

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: Three Mile Island Nuclear Station, Unit 2
Operating License No. DPR-73
Amendment of Order for Changes to Proposed Technical Specifications

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: Amendment of Order

Bernard J. Snyder
Bernard J. Snyder, Program Director
Office of Nuclear Reactor Regulation

Enclosure:
As Stated