April 1, 1982

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Docket No. 50-320

Mr. John J. Barton
Acting Director of TMI-2
GPU Nuclear Corporation
P.O. Box 480
Middletown, PA 17057

Dear Mr. Barton:

The Nuclear Regulatory Commission has issued the enclosed Amendment of Order for the Three Mile Island Nuclear Station, Unit 2. This Amendment of Order changes the Recovery Mode Proposed Technical Specifications to reflect current conditions at the plant. The changed requirements had been imposed by the Order of the Director of the Office of Nuclear Reactor Regulation on Feburary 11, 1980. These changes are being made in response to your request of December 11, 1981. This Amendment of Order is effective upon issuance.

Copies of the related Safety Evaluation and revised pages for the proposed Technical Specifications are enclosed.

Sincerely,

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

Enclosures:
1. Amendment of Order
2. Safety Evaluation
3. Proposed Technical Specification Page Changes

cc w/encl: See next page
L. King
J. Larson

If subject to changes deletions noted in Amend. Order & SER

See previous concurrence

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OFFICE	TMIPO:NRR	TMIPO:NRR	TMIPD:NRR	ELD	NRR	NRR	
SURNAME	TPoindexter/bg	RWeller	BJSnyder		EGCase	HRDenton	
DATE	3/12/82	3/12/82	3/15/82	3/ /82	3/25/82	3/26/82	

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USGPO 1980—329-824

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of METROPOLITAN EDISON COMPANY, et. al. (Three Mile Island Nuclear Station, Unit 2)	)	Docket No. 50-320 OLA

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 had 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. 11282)

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 presently pending before the Atomic Safety and Licensing Board. Hereafter in this Amendment of Order, the requirements in question are identified by the applicable proposed Technical Specification.

II.

By letter dated December 11, 1981, the licensee proposed changes to the Recovery Mode Technical Specifications for Three Mile Island Unit 2 (TMI-2) to reflect current plant conditions.

The licensee has requested NRC staff approval to delete the operability requirements of Long Term "B" steam generator cooling system as a backup mode for removing decay heat from the reactor coolant system. The "loss to ambient" cooling mode will continue to be the primary mode for core cooling with the Mini-Decay Heat Removal System and the Decay Heat Removal System as alternatives. The "loss to ambient" cooling mode has proven itself to be an effective way to remove decay heat and its failure is unlikely because it is a passive system. Should the "loss to ambient" cooling mode fail, other Decay Heat Removal Systems are available as approved alternatives. Accordingly, the staff has found that the deletion of the Long Term "B" cooling system, its associated secondary cooling water and electrical supply from sections 3.7.1, 3.7.2, 3.8.2.1, and the associated bases in sections 3/4.4.1 and 3/4.7.1 is acceptable.

The staff's safety assessment of this matter is set forth in the concurrently issued Safety Evaluation. This evaluation concluded, in material part, that the modification does not involve a significant hazards consideration and that there is reasonable assurance that the health and safety of the public will not be endangered by operation in the modified manner. Prior public notice of this Amendment of Order is therefore not required and the action is effective upon issuance.

It was 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, it was concluded that the instant action is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5 (d)(4), that an environmental impact statement or environmental impact appraisal need not be prepared herewith.

III.

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 Attachment A hereto. For further details with respect to this action, see (1) Letter to B. Snyder, USNRC, from R. Arnold, Met-Ed/GPU, Technical Specification Change Request No. 33 dated December 11, 1981 and (2) The Director's Order of February 11, 1980.

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

Effective Date: April 1, 1982
Dated at Bethesda, Maryland

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

GPU NUCLEAR CORPORATION

METROPOLITAN EDISON COMPANY

PENNSYLVANIA ELECTRIC COMPANY

JERSEY CENTRAL POWER AND LIGHT COMPANY

DOCKET NO. 50-320

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 2

INTRODUCTION

By letter dated December 11, 1981, Metropolitan Edison Company proposed changes to Sections 3.7.1, 3.7.2 and 3.8.2.1 of the Recovery Mode Technical Specifications for Three Mile Island Unit 2 (TMI-2) by requesting that the requirements for the operability of the Long Term B (LTB) steam generator cooling system and its associated electrical busses 2-31 and 2-41 be deleted. The requirements of the Recovery Mode Technical Specifications were imposed on the Licensee by Order of the Director, Nuclear Reactor Regulation, dated February 11, 1980 (45 Fed. Reg. 11282). Although this mode of reactor coolant system (RCS) heat removal has been maintained as one of the backup cooling modes available, the presently used "loss to ambient" mode has been successful in removing decay heat since it was fully implemented in January 1981. This change would also remove the operability requirements for LTB associated secondary cooling water and electrical busses from the proposed technical specifications. The Mini-Decay Heat Removal System (MDHRS) and Decay Heat Removal System (DHRS) would then become the backup core cooling modes. MDHRS and DHRS are required to be operable per proposed Technical Specification subsections 3.7.3.3 and 3.7.3.2 respectively.

SUMMARY

The licensee has requested NRC staff approval to delete the operability require-

ments of Long Term "B" steam generator cooling system as a backup mode for removing decay heat from the reactor coolant system. As discussed in this safety evaluation, the "loss to ambient" cooling mode will continue to be the primary mode for core cooling with the Mini-Decay Heat Removal System and the Decay Heat Removal System as alternatives. The "loss to ambient" cooling mode has proven itself as an effective way to remove decay heat and its failure is unlikely because it is a passive system. The other Decay Heat Removal Systems are available as approved alternatives. The staff, therefore, has found that the deletion of Long Term "B", its associated secondary cooling water and electrical supply from the proposed technical specifications are acceptable.

EVALUATION

By 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 TMI-2 facility. This order incorporated operability requirements for the Long Term "B" (LTB) steam generator cooling system. This is a water solid, closed loop, cooling system which is in turn cooled by the Secondary Services Closed Cooling Water System. By Amendment of Order dated November 14, 1980, the Mini-Decay Heat Removal System (MDHRS) was also incorporated into the proposed technical specifications as an alternate cooling mode. MDHRS is also a closed loop water solid system sized such that one pump and one heat exchanger (two of each are installed) could remove up to approximately 1 MW of decay heat. The MDHRS would be cooled by the Nuclear Services Closed Cycle Cooling System.

Currently the reactor coolant system (RCS) is generating less than 50 KW of decay heat. This heat is being removed via the "loss to ambient" cooling mode.

Since the approval of this method by the NRC staff in January 1981, it has shown to be an effective and reliable means for core cooling. In the staff's opinion, since this is a passive mode of heat removal, the chances that an event occurring that would prevent loss of decay heat to be released to ambient is unlikely. In addition, LTB was originally designed for a decay heat rate corresponding to that existing shortly after the accident with a design heat exchange rate of 12.11.E3 KW (41.35 E6 BTU/hr). Presently, the decay heat is less than 50 KW (17.07 E4 BTU/hr). Consequently, the LTB system is oversized for its potential current usage.

The only transient that would result in a temperature and pressure increase such that "loss to ambient" would no longer be effective would be a recriticality accident. This event was discussed in the Final Programmatic Impact Statement (PEIS) for TMI-2 issued in March 1981. Paragraph 4.1 of the PEIS states that "the most probable (although very unlikely) cause of recriticality was found to be boron dilution, which would be a slow enough process that any approach to criticality can be detected and remedied." This statement is still valid. The staff, therefore, has concluded that this accident does not need to be considered a factor in maintaining the core in its present thermodynamic condition. All other causes of recriticality are, in the staff's opinion, also very unlikely and need not be considered.

Since the present mode of decay heat removal is effective and dependable, and the MDHRS and Decay Heat Removal System are required per proposed technical specifications to be operable thereby providing adequate backup modes, this proposed change to delete the operability requirements for the LTB system

is, therefore, acceptable and will not result in a significant increase in the probability or consequences of accidents previously considered nor a significant reduction in a margin of safety and does not therefore involve a significant hazards consideration.

ENVIRONMENTAL CONSIDERATIONS

We have determined that the change 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. Having made this determination, we have further concluded that the change involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5 (d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuances of this change.

CONCLUSION

Based upon our review of the effectiveness history of the "loss to ambient" cooling mode, and the availability of approved backup decay heat modes required operable per the proposed technical specifications, the staff finds that the deletion of the Long Term B cooling mode, its associated secondary closed cooling water and its electrical busses from the proposed technical specifications is acceptable. The associated bases for the proposed technical specifications have also been modified as requested by the licensee.

We have also concluded, based on the considerations discussed above, that:
(1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, it does not involve a significant hazards consideration,
(2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and
(3) 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.

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.

Pages

3.7-1
3.8-4
B 3/4 4-1
B 3/4 7-1

3.7 PLANT SYSTEMS

3.7.1 FEEDWATER SYSTEM

3.7.2 SECONDARY SERVICES CLOSED COOLING WATER SYSTEM

3.7.3 CLOSED CYCLE COOLING WATER SYSTEM

NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM

3.7.3.1 At least two independent nuclear services closed cycle cooling water pumps and heat exchangers and the associated flow path shall be OPERABLE with each pump capable of being powered from separate emergency busses.

APPLICABILITY: RECOVERY MODE.

ACTION:

With only one nuclear services closed cycle cooling water pump or only one nuclear services heat exchanger OPERABLE, restore the inoperable pump or heat exchanger to OPERABLE status within 72 hours.

3.8.2 ONSITE POWER DISTRIBUTION SYSTEMS

A.C. DISTRIBUTION

3.8.2.1 The following A.C. electrical busses shall be OPERABLE and energized with tie breakers open (unless closed in accordance with procedures approved pursuant to Specification 6.8.2) between redundant busses:

4160 volt Emergency Bus # 2-1E and 2-3E

4160 volt Emergency Bus # 2-2E and 2-4E

4160 volt Busses # 2-3 and 2-4

480 volt Emergency Bus # 2-11E, 2-12E and 2-31E

480 volt Emergency Bus # 2-21E, 2-22E and 2-41E

480 volt Busses # 2-32, 2-42, 2-35, 2-36, 2-45, and 2-46

120 volt A.C. Vital Bus # 2-1V

120 volt A.C. Vital Bus # 2-2V

120 volt A.C. Vital Bus # 2-3V

120 volt A.C. Vital Bus # 2-4V

APPLICABILITY: RECOVERY MODE.

ACTION:

With less than the above complement of A.C. busses OPERABLE, restore the inoperable bus to OPERABLE status within 8 hours.

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 REACTOR COOLANT LOOPS

Several alternative methods are available for removal of reactor decay heat. These methods include use of the Mini Decay Heat Removal System, the "Loss to Ambient" cooling mode. Either of these cooling methods provides adequate cooling of the reactor and each method is available for decay heat removal. Procedures have been prepared and approved for use of these cooling methods.

3/4.4.3 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2750 psig. Each safety valve is designed to relieve 348,072 lbs per hour of saturated steam at the valve's setpoint.

3/4.4.9 PRESSURE/TEMPERATURE LIMIT

The RCS pressure and temperature will be controlled in accordance with approved procedures to prevent a nonductile failure of the RCS while at the same time permitting the RCS pressure to be maintained at a sufficiently high value to permit operation of the reactor coolant pumps.

Reactor coolant chemistry surveillance requirements are included in the Recovery Operations Plan. These requirements provide assurance that localized corrosion or pitting in crevice areas, which could tend to promote stress corrosion cracking in heat affected zones of welds in stainless steel piping or components, will not occur. This assurance is provided by maintaining the reactor coolant dissolved oxygen concentration and pH to within the specified limits. The oxygen concentration must be limited since the chloride concentration is relatively high and cannot be reduced due to the unavailability of the purification demineralizers. Hydrazine is used to control the oxygen concentration in the presence of metallic impurities in the reactor coolant.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 FEEDWATER SYSTEM

3/4.7.2 SECONDARY SERVICES CLOSED COOLING WATER SYSTEM

3/4.7.3 CLOSED CYCLE COOLING WATER SYSTEM

3/4.7.3.1 NUCLEAR SERVICES CLOSED CYCLE COOLING SYSTEM

OPERABILITY of the nuclear services closed cycle cooling system is required during operation of the MDHRS since this system provides the heat sink for the MDHRS.

3/4.7.3.2 DECAY HEAT CLOSED COOLING WATER SYSTEM

The decay heat closed cooling water system is required to be maintained in an OPERABLE status since it is provided to remove heat from the DHR system which is being maintained OPERABLE in a backup status for possible core cooling.

3/4.7.3.3 MINI DECAY HEAT REMOVAL SYSTEM (MDHRS)

OPERABILITY of the MDHRS is required since it is an alternative method for removing decay heat from the reactor. The MDHRS is provided with two pumps and two heat exchangers; one pump and one heat exchanger have adequate capacity for removing the present level of decay heat from the core.

3/4.7.4 NUCLEAR SERVICE RIVER WATER SYSTEM

The nuclear service river water system uses river water to cool the nuclear services closed cycle cooling system, the secondary services closed cooling water system, and decay heat closed cooling water system; therefore, it must be OPERABLE too. This system rejects its heat to the river as the ultimate heat sink.