July 25, 1994

Docket No. 50-289

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Mr. T. Gary Broughton, Vice President
and Director - TMI-1
GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057

Dear Mr. Broughton:

SUBJECT: ISSUANCE OF AMENDMENT - TSCR NO. 230 (TAC NO. M89054)

The Commission has issued the enclosed Amendment No. 188 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1), in response to your letter dated February 10, 1994.

The amendment revises the TMI-1 Technical Specifications (TS) to revise specification 3.7.2.c, "Unit Electric Power System," to provide an option to testing an emergency diesel generator (EDG) when the redundant EDG is inoperable. In lieu of this testing, your application proposed that the operable EDG be verified so by verifying that the surveillance is current and that other available information does not indicate inoperability.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
Original signed by Alexander W. Dromerick

for: Ronald W. Hernan, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 188 to DPR-50
2. Safety Evaluation

cc w/enclosures:
See next page



| OFFICE | LA:PDI-4 | PM:PDI-4 | D:PDI-4 | OGC | |
|---|---|---|---|---|---|
| NAME | SNorris | RHernan:bp | JStolz | | |
| DATE | 6/23/94 | 6/23/94 | 6/23/94 | 6/28/94 | |

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 25, 1994

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and Director - TMI-1
GPU Nuclear Corporation
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Ronald W. Hernan, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
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cc w/enclosures:
See next page

Mr. T. Gary Broughton
GPU Nuclear Corporation

Three Mile Island Nuclear Station,
Unit No. 1

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

PENNSYLVANIA ELECTRIC COMPANY

GPU NUCLEAR CORPORATION

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 188
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by GPU Nuclear Corporation, et al. (the licensee), dated February 10, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 188 , are hereby incorporated in the license. GPU Nuclear Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Albert W. McGaffigan Jr

John F. Stolz, Director
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 25, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 188

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

| Remove | Insert |
|---|---|
| 3-42 | 3-42 (no change) |
| 3-43 | 3-43 |
| --- | 3-43a (new page) |

## 3.7 UNIT ELECTRIC POWER SYSTEM

### Applicability

Applies to the availability of electrical power for operation of the unit auxiliaries.

### Objective

To define those conditions of electrical power availability necessary to ensure:

a. Safe unit operation

b. Continuous availability of engineered safeguards

### Specification

3.7.1 The reactor shall not be made critical unless all of the following requirements are satisfied:

a. All engineered safeguards buses, engineered safeguards switchgear, and engineered safeguards load shedding systems are operable.

b. One 7200 volt bus is energized.

c. Two 230 kv lines are in service.

d. One 230 kv bus is in services.

e. Engineered safeguards diesel generators are operable and at least 25,000 gallons of fuel oil are available in the storage tank.

f. Station batteries are charged and in service. Two battery chargers per battery are in service.

3.7.2 The reactor shall not remain critical unless all of the following requirements are satisfied:

a. Two 230 kv lines are in service and capable of carrying auxiliary power to Unit 1, except as specified in Specification 3.7.2e below.

b. Both 230/4.16 kv unit auxiliary transformers shall be in operation except that within a period not to exceed eight hours in duration from and after the time one Unit 1 auxiliary transformer is made or found inoperable, two diesel generators shall be operable, and one of the operable diesel generators will be started and run continuously until both unit auxiliary transformers are in operation. This mode of operation may continue for a period not exceeding 30 days. In lieu of running a diesel generator, a 4160 volt tie from a Unit 2 transformer shall be placed in service, thus supplying the second of two feeds to the engineered safeguard buses causing no degradation of the system and permitting continued operation indefinitely.

c. Both diesel generators shall be operable except that from the date that one of the diesel generators is made or found to be inoperable

for any reason, reactor operation is permissible for the succeeding seven days provided that the redundant diesel generator is:

1. verified to be operable immediately;

2. within 24 hours either:

   a. determine the redundant diesel generator is not inoperable due to a common mode failure or

   b. test redundant diesel generator in accordance with surveillance requirement 4.6.1.a.

In the event two diesel generators are inoperable, the unit shall be placed in hot shutdown in 12 hours. If one diesel is not operable within an additional 24 hour period the plant shall be placed in cold shutdown within an additional 24 hours thereafter.

With one diesel generator inoperable, in addition to the above, verify that: All required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE or follow specifications 3.0.1.

d. If one Unit Auxiliary Transformer is inoperable and a 4160 volt tie from Unit 2 transformer cannot be placed in service and a diesel generator becomes inoperable, the unit will be placed in hot shutdown within 12 hours. If one of the above sources of power is not made operable within an additional 24 hours the unit shall be placed in cold shutdown within an additional 24 hours thereafter.

e. If Unit 1 is separated from the system while carrying its own auxiliaries, or if only one 230 kv line is in service, continued reactor operation is permissible provided one emergency diesel generator shall be started and run continuously until two transmission lines are restored.

f. The engineered safeguards electrical bus, switchgear, load shedding, and automatic diesel start systems shall be operable except as provided in Specification 3.7.2c above and as required for testing.

g. One station battery may be removed from service for not more than eight hours.

Bases

The Unit Electric Power System is designed to provide a reliable source of power for balance of plant auxiliaries and a continuously available power supply for the engineered safeguards equipment. The availability of the various components of the Unit Electric Power System dicates the permissible mode of station operation.

Verification of operability normally consists of verifying that the surveillance is current, and that other available information does not indicate inoperability.

It is recognized that while testing the redundant diesel in accordance with surveillance requirement 4.6.1.a, the diesel will not respond to an automatic initiation signal. In this situation, the 12 hour time clock will not be entered per the provisions of section 3.7.2.f. due to the low probability of an event occurring while the diesel being tested.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 188 TO FACILITY OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

PENNSYLVANIA ELECTRIC COMPANY

GPU NUCLEAR CORPORATION

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

## 1.0 INTRODUCTION

By letter dated February 10, 1994, the GPU Nuclear Corporation (GPUN or the licensee) submitted a request for changes to the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) Technical Specifications (TS). The requested change would revise TMI-1 TS 3.7.2.c, "Unit Electric Power System," to provide an option to testing an emergency diesel generator (EDG) when the redundant EDG is inoperable. In lieu of this testing, the licensee's application proposed that the operable EDG be verified so by verifying that the surveillance is current and that other available information does not indicate inoperability.

## 2.0 EVALUATION

TMI-1 has two redundant emergency diesel-driven generators, each rated at 3,000 kW electrical (0.8 power factor) and capable of up to 3,300 kW for a short time (30 minutes). The diesels are driven by opposing-piston Fairbanks-Morse diesel engines. The target EDG reliability is 0.975. One significant contributor to the high reliability of the EDGs is the fact that they are air-cooled, using a radiator and direct-driven fan, similar to an automobile engine. In addition to the normal EDGs, the licensee has installed a third, similarly sized EDG as an alternate alternating current power source to meet the requirements of the Station Blackout Rule (10 CFR 60.63). The station blackout EDG can be started and aligned to either 1E emergency 4160 Kv bus from the TMI-1 control room within a matter of a few minutes.

Section 3.7.2.c of the current TMI-1 TS states "... from the date that one of the diesel generators is made or found to be inoperable for any reason, reactor operation is permissible for the succeeding seven days provided that during such seven days the operable diesel generator is tested immediately and daily."

The TS requirement was based on an earlier NRC position that intended to provide positive demonstration that a loss of safety function had not occurred. To perform the testing required by the TS, the EDG must be taken out of its standby emergency function that requires the generator to reach rated speed and accept emergency electrical loads within 10 seconds. In other words, both EDGs are essentially out of service during the period of time required to test the operable EDG, which could be up to one 1 hour. Supplemental testing of the EDGs in this case also results in an increased probability of equipment failure due to unnecessary wear. In developing the revised standard TS, as documented in NUREG-1430, "Standard Technical Specifications for Babcock and Wilcox Plants" (September 1992), the staff position evolved to allowing an alternate to an actual test run of the operable EDG in the event of an inoperable EDG. TS Sections 3.8.1.B.3.1 and 3.8.1.B.3.2 state "Determine OPERABLE DG(s) is not inoperable due to common cause failure OR perform SR 3.8.1.2 for OPERABLE DG(s)" with a suggested 24 hour completion time. SR 3.8.1.2 requires an operational test of the operable EDG.

The licensee stated in their submittal that industry operating experience has demonstrated that testing EDGs, when one train is out of service, is not necessary to provide assurance of system operability. A failure (or removal from service for maintenance) of one EDG does not reduce reliability of the operable EDG. Surveillance testing is performed on a periodic basis, including a monthly operational test as recommended by the vendor, to verify operability of the EDGs. Routine log readings and visual inspection by plant operators are performed each shift to detect degradation of these units or their support systems. Each EDG currently undergoes a complete overhaul and internal inspection each year to maintain reliability.

The Individual Plant Examination (IPE) report, submitted in June 1993 in response to Generic Letter 88-20, indicated the contribution of loss of offsite power to core damage frequency is only about 4%. The IPE report stated that station blackout sequences are lower in frequency at TMI-1 than might be expected for a two train plant for the reasons stated above plus the fact that the emergency AC power trains are normally aligned to the 230 Kv switchyard via two auxiliary transformers rather than to the output of the main generator, eliminating the need for a transfer given a generator trip.

For the above reasons, and because the licensee's request conforms with NUREG-1430, the staff concludes that the requested change to the TMI-1 TS is acceptable.

Page 3-42 is included in this amendment for clarity. No changes have been made to this page.

## 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts or types of effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (59 FR 32230). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Hernan

Date: July 25, 1994