

June 30, 1994

Docket No. 50-289

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

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OGC	JRogge, RI
RHernan	

Dear Mr. Broughton:

SUBJECT: ISSUANCE OF AMENDMENT - TSCR NO. 205 (TAC NO. M80658)

The Commission has issued the enclosed Amendment No. 186 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 June 12, 1991.

The amendment revises the TMI-1 Technical Specifications to clarify the setpoint ranges for the pressurizer power-operated relief valve and provides action statements to be satisfied when setpoint ranges are not met.

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:

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. 186 to DPR-50
2. Safety Evaluation

cc w/enclosures:  
See next page

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*w/changes to SE*

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DATE	6/20/94	6/20/94	6/20/94	6/22/94	

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GPU Nuclear Corporation

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Unit No. 1

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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. 186  
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 June 12, 1991, 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.

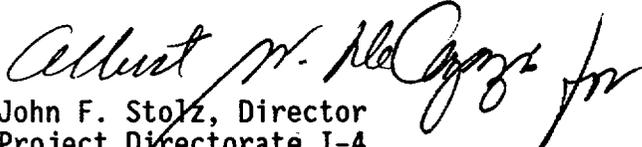
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 186, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
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: June 30, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 186

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

3-18d  
3-18e  
3-18f  
3-18g  
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Insert

3-18d  
3-18e  
3-18f  
3-18g (new page number)  
3-19h (new page number)

3.1.12 Pressurizer Power Operated Relief Valve (PORV) and Block Valve  
Applicability

Applies to the settings, and conditions for isolation of the PORV.

Objective

To prevent the possibility of inadvertently overpressurizing or depressurizing the Reactor Coolant System.

Specification

3.1.12.1 When the RCS is below 332°F the PORV shall not be taken out of service, nor shall it be isolated from the system unless one of the following is in effect:

- a. High Pressure Injection Pump breakers are racked out.
- b. MU-V16A/B/C/D are closed with their breakers open, and MU-V217 is closed.
- c. Head of the Reactor Vessel is removed.

3.1.12.2 The PORV settings shall be as follows:

- a. Above 275°F ± 12°F - Minimum 2425 psig (Nominal 2450 psig).

With the PORV setpoint below the minimum value, within 8 hours either:

1. restore the setpoint above the minimum value, or
2. close the associated block valve, or
3. close the PORV, and remove power from PORV
4. otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- b. Below 275°F ± 12°F - Maximum 510 psig (Nominal 485 psig).

Within the PORV setpoint above the maximum value, within 8 hours either:

1. restore the setpoint below the maximum value, or
2. satisfy the requirements of Technical Specification 3.1.12.1 allowing the PORV to be taken out of service.

3.1.12.3 If the reactor vessel head is installed and  $T_{avg}$  is  $\leq 332^{\circ}\text{F}$ , High Pressure Injection Pump breakers shall not be racked in unless:

- a. MU-V16A/B/C/D are closed with their breakers open, and MU-V217 is closed, and
- b. Pressurizer level is  $\leq 220$  inches. If pressurizer level is  $> 220$  inches, restore level to  $\leq 220$  inches within 1 hour.

3.1.12.4 The PORV Block Valve shall be OPERABLE during HOT STANDBY, STARTUP, and POWER OPERATION:

- a. With the PORV Block Valve inoperable, within 1 hour either:
  1. restore the PORV Block Valve to OPERABLE status or
  2. close the PORV (verify closed) and remove power from the PORV
  3. otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With the PORV block valve inoperable, restore the inoperable valve to OPERABLE status prior to startup from the next COLD SHUTDOWN unless the COLD SHUTDOWN occurs within 90 Effective Full Power Days (EFPD) of the end of the fuel cycle. If a COLD SHUTDOWN occurs within this 90 day period, restore the inoperable valve to OPERABLE status prior to startup for the next fuel cycle.

#### Bases

If the PORV is removed from service while the RCS is below  $332^{\circ}\text{F}$ , sufficient measures are incorporated to prevent severe overpressurization by either eliminating the high pressure sources or flowpaths or assuring that the RCS is open to atmosphere.

The PORV setpoints are specified with tolerances assumed in the bases for Technical Specification 3.1.2. Above  $287^{\circ}\text{F}$  ( $275^{\circ}\text{F} + 12^{\circ}\text{F}$ ), the PORV setpoint has been chosen to limit the potential for inadvertent discharge or cycling of the PORV. Other action such as removing the power to the PORV has the same effect as raising the setpoint which also satisfies this requirement. There is no upper limit on this setpoint as the Pressurizer Safety Valves (T.S. 3.1.1.3) provide the required overpressure relief.

Below  $263^{\circ}\text{F}$  ( $275^{\circ}\text{F} - 12^{\circ}\text{F}$ ), the PORV setpoint is reduced to provide the required low temperature overpressure relief when high pressure sources and flowpaths are in service. There is no lower limit on the pressure actuation specified as lower setpoints also provide this same protection.

In both cases, the  $275^{\circ}\text{F} \pm 12^{\circ}\text{F}$  setting is specified to reflect the nominal value which allows for normal variations in the temperature setpoint while maintaining the tolerances assumed in the bases for T.S. 3.1.2. Either pressure actuation setpoint is acceptable within the temperature range between  $263^{\circ}\text{F}$  and  $287^{\circ}\text{F}$ .

With RCS temperatures less than  $332^{\circ}\text{F}$  and the makeup pumps running, the high pressure injection valves are closed and pressurizer level is maintained less than 220 inches to allow time for action to prevent severe overpressurization in the event of any single failure.

The PORV block valve is required to be OPERABLE during the HOT STANDBY, STARTUP, and POWER OPERATION in order to provide isolation of the PORV discharge line to positively control potential RCS depressurization.

For protection from severe overpressurization during HPI testing, refer to Section 4.5.2.1.c.

### 3.1.13 Reactor Coolant System Vents

#### Applicability

Provides the limiting conditions for operation of the Reactor Coolant System Vents. These limiting conditions for operation (LCO) are applicable only when Reactor is critical.

#### Objective

To ensure that sufficient vent flow paths are operable during the plant operating modes mentioned above.

#### Specification

- 3.1.13.1 At least one reactor coolant system vent path consisting of at least two power operated valves in series, powered from emergency buses shall be OPERABLE and closed at each of the following locations:
- a. Reactor vessel head\* (RC-V42 & RC-V43)
  - b. Pressurizer steam space (RC-V28 & RC-V44)
  - c. Reactor coolant system high point (either RC-V40A and 41A) or (RC-40B and 41B)

#### Action

- 3.1.13.2
- a. With one of the above reactor coolant system vent paths inoperable, the inoperable vent path shall be maintained closed, with power removed from the valve actuators in the inoperable vent path. The inoperable vent path shall be restored to OPERABLE status within 30 days, or the plant shall be in HOT SHUTDOWN within an additional 6 hours and in COLD SHUTDOWN within the following 30 hours.
  - b. With two or more of the above reactor coolant system vent paths inoperable, maintain the inoperable vent path closed, with power removed from the valve actuators in the inoperable vent paths, and restore at least two of the vent paths to OPERABLE status within 72 hours or be in HOT SHUTDOWN within an additional 6 hours and in COLD SHUTDOWN within the following 30 hours.

\* This specification becomes binding after installation and initially being declared operable.

## Bases

The safety function enhanced by this venting capability is core cooling. For events beyond the present design basis, this venting capability will substantially increase the plants ability to deal with large quantities of noncondensable gas which could interfere with natural circulation (i.e., core cooling).

The reactor vessel head vent (RC-V42 & RC-V43 in series) provides the capability of venting noncondensable gases from the majority of the reactor vessel head as well as the Reactor Coolant hot legs (to the elevation of the top of the outlet nozzles) and cold legs (through vessel internals leakage paths, to the elevation of the top of the inlet nozzles). This vent is routed to containment atmosphere.

Venting for the pressurizer steam space (RC-V28 and RC-V44 in series) has been provided to assure that the pressurizer is available for Reactor Coolant System pressure and volume control. This vent is routed to the Reactor Coolant Drain Tank.

Additional venting capability has been provided for the Reactor Coolant hot leg high points (RC-V40A, B, RC-41A, B), which normally cannot be vented through the Reactor vessel head vent or pressurizer steam-space vent. These vents relieve to containment atmosphere through a rupture disk (set at low pressure).

The above vent systems are seismically designed and environmentally qualified in accordance with the May 23, 1980 Commission Order and Memorandum per NUREG-0737, Item II.B.1. The high point vents do not fall within the scope of 10 CFR 50.49, since the vents are not relied upon during or following any design basis event (Reference 1). The power operated valves (2 in series in each flow path) which are powered from emergency buses fail closed on loss of power. All vent valves for the reactor vessel head vent, pressurizer vent and loop B high point vent are powered from the class 1E "B" bus. The vent valves for the loop A high point vent are powered from the class 1E "A" bus. The power operated valves are controlled in the Control Room. The individual vent path lines are sized so that an inadvertent valve opening will not constitute a LOCA as defined in 10 CFR 50.46(c)(1). These design features provide a high degree of assurance that these vent paths will be available when needed, and that inadvertent operation or failures will not significantly hamper the safe operation of the plant (Reference 2).

## REFERENCES

- (1) UFSAR, Section 4.2.3.9 - "Reactor Coolant System Venting"
- (2) UFSAR, Section 7.3.2.2.c (16) - "Reactor Coolant System Venting"



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 186 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 June 12, 1991, 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 changes would clarify the pressurizer power-operated relief valve (PORV) setpoint ranges and would provide action requirements to be satisfied when the setpoint ranges are not met.

2.0 EVALUATION

The function of the PORV is to prevent overpressurization of the reactor coolant system (RCS) during normal power operation as well as to provide low temperature overpressure protection (LTOP) when RCS temperature is below 275°F. The LTOP function is a safety function whereas the overpressure safety function when RCS temperature is above 332°F is provided by the two Code safety relief valves on the pressurizer. No credit is taken for the PORV or PORV block valve in the plant safety analysis. The proposed TS requires certain plant conditions to be met in order to isolate the PORV at temperatures below 332°F. The motor-operated PORV block valve is located between the pressurizer and the PORV and can be used to isolate the PORV in the event of PORV seat leakage or failure of the PORV to reseat following actuation.

There are tolerance bands in the TMI-1 TS for both temperature and pressure with respect to the PORV setpoints. The tolerance band for temperature is 275°F±12°F (263°F to 287°F). The tolerance band for the pressure setpoint is the nominal value ±25 psig. The nominal value with RCS temperature above 287°F is 2450 psig (range of 2425 psig to 2475 psig). The nominal value with RCS temperature below 263°F is 485 psig (range of 460 psig to 510 psig).

The proposed amendment clarifies the setpoint requirements and tolerance bands to make them more understandable to the plant operators. The specific changes are discussed below:

- 3.1.12.1 Clarifies that the PORV shall not be taken out of service or isolated from the system when RCS temperatures are below 332°F unless one of three specified conditions is in effect.

Breaks down into separate conditions the requirement to rack out high pressure injection pump breakers and closing valves MU-V16A/B/C/D and MU-V217.

Adds a requirement to open the breakers to MU-V16A/B/C/D when the valves are required to be closed.

- 3.1.12.2 More clearly states acceptable range for PORV pressure setting stating a minimum for RCS temperature above 275°F ( $\pm 12^\circ\text{F}$ ) and a maximum for RCS temperatures below 275°F ( $\pm 12^\circ\text{F}$ ).

States actions to be taken when PORV pressure setpoints do not meet the required range (formerly stated in 3.1.12.4.a).

- 3.1.12.3 Adds a requirement that the breakers for MU-V16A/B/C/D be opened whenever the valves are required to be shut (with RCS temperature  $\leq 332^\circ\text{F}$  and the reactor vessel head installed).
- 3.1.12.4 Relocates action requirements for an inoperable PORV to Section 3.1.12.3.

The "Bases" section for TS 3.1.12 would also be revised to clarify the bases for the setpoints and operability requirements.

In addition to clarifying the TS to make them more understandable (i.e., administrative and editorial changes), the licensee stated that the minor reorganization of PORV requirements from 3.1.12.4 to 3.1.12.2 is justified because the PORV is used neither as the primary means of mitigating a design-basis steam generator tube rupture accident nor for RCS pressure control during plant cooldown. The staff has reviewed these changes and agrees with the licensee's determination. The changes are, therefore, acceptable.

### 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 (56 FR 31435). 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: June 30, 1994