

July 25, 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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Dear Mr. Broughton:

SUBJECT: ISSUANCE OF AMENDMENT - TSCR NO. 241 (TAC NO. M89057)

The Commission has issued the enclosed Amendment No. 190 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit No. 1, in response to your letter dated March 11, 1994.

The amendment revises the TMI-1 Technical Specifications to specify an allowable outage time for the Emergency Feedwater Pumps during surveillance activities. It also changes the requirement to test redundant components for operability to a requirement to ensure operability based on verification of completion of appropriate surveillance activities.

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. 190 to DPR-50
2. Safety Evaluation

cc w/enclosures:

See next page

194-107

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|--------|----------|----------|-----------------|-----------------|----------|---------|--|
| OFFICE | LA:PDI-4 | PM:PDI-4 | BC:OTSB<br>OTSB | BC:OTSB<br>SPLB | PD:PDI-4 | OGC     |  |
| NAME   | SNorris  | RHernan  | CGrimes         | CMCracken       | AMZ      | EHULLER |  |
| DATE   | 5/23/94  | 5/23/94  | 5/26/94         | 7/12/94         | 5/24/94  | 6/16/94 |  |

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QFO/11

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. 190  
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 March 11, 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.

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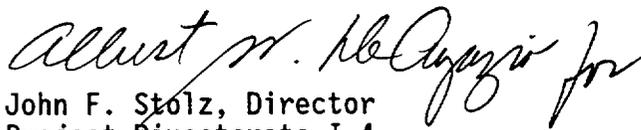
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.190 , 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



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.190

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

3-22  
3-25  
3-26b  
3-41  
3-61

Insert

3-22  
3-25  
3-26b  
3-41  
3-61

- e. Core flood tank (CFT) vent valves CF-V3A and CF-V3B shall be closed and the breakers to the CFT vent valve motor operators shall be tagged open, except when adjusting core flood tank level and/or pressure. Specification 3.0.1 applies.

3.3.1.3 Reactor Building Spray System and Reactor Building Emergency Cooling System

The following components must be OPERABLE:

- a. Two reactor building spray pumps and their associated spray nozzles headers and two reactor building emergency cooling fans and associated cooling units (one in each train). Specification 3.0.1 applies.
- b. The sodium hydroxide (NaOH) tank shall be maintained at 8 ft. + 6 inches lower than the BWST level as measured by the BWST/NaOH tank differential pressure indicator. The NaOH tank concentration shall be  $10.0 \pm .5$  weight percent (%).
- c. All manual valves in the discharge lines of the sodium hydroxide tank shall be locked open.

3.3.1.4 Cooling Water Systems - Specification 3.0.1 applies.

- a. Two nuclear service closed cycle cooling water pumps must be OPERABLE.
- b. Two nuclear service river water pumps must be OPERABLE.
- c. Two decay heat closed cycle cooling water pumps must be OPERABLE.
- d. Two decay heat river water pumps must be OPERABLE.
- e. Two reactor building emergency cooling river water pumps must be OPERABLE.

3.3.1.5 Engineered Safeguards Valves and Interlocks Associated with the Systems in Specifications 3.3.1.1, 3.3.1.2, 3.3.1.3, 3.3.1.4 are OPERABLE. Specification 3.0.1 applies.

3.3.2 Maintenance or testing shall be allowed during reactor operation on any component(s) in the makeup and purification, decay heat, RB emergency cooling water, RB spray, CFT pressure instrumentation, CFT level instrumentation, BWST level instrumentation, or cooling water systems which will not remove more than one train of each system from service. Components shall not be removed from service so that the affected system train is inoperable for more than 72 consecutive hours. If the system is not restored to meet the requirements of Specification 3.3.1 within 72 hours, the reactor shall be placed in a HOT SHUTDOWN condition within six hours.

### 3.4 DECAY HEAT REMOVAL CAPABILITY

#### Applicability

Applies to the operating status of systems and components that function to remove decay heat when one or more fuel bundles are located in the reactor vessel.

#### Objective

To define the conditions necessary to assure continuous capability of decay heat removal.\*

#### Specification

3.4.1 Reactor Coolant System temperature greater than 250°F.

3.4.1.1 With the Reactor Coolant System temperature greater than 250°F, three independent EFW pumps and associated flow paths shall be OPERABLE\*\* with:

a. Two EFW pumps, each capable of being powered from an OPERABLE emergency bus, and one EFW pump capable of being powered from an OPERABLE steam supply system.

(1) With one pump or flow path inoperable, restore the inoperable pump or flow path to OPERABLE status within 72 hours or be in COLD SHUTDOWN within the next 12 hours.

(2) With more than one EFW pump or flow path inoperable, restore the inoperable pumps or flow paths to OPERABLE status or be subcritical within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in COLD SHUTDOWN within the following 6 hours.

NOTE: When EF-P-1 and EF-P-2A or EF-P-2B become inoperable due to TS surveillance, entry into this LCO may be delayed for up to 8 hours.

b. Four of six turbine bypass valves OPERABLE. With more than two turbine bypass valves inoperable, restore operability of at least four turbine bypass valves within 72 hours.

c. The condensate storage tanks (CST) OPERABLE with a minimum of 150,000 gallons of condensate available in each CST.

(1) With a CST inoperable, restore the CST to operability within 72 hours or be in at least HOT SHUTDOWN within the next 6 hours, and COLD SHUTDOWN within the next 30 hours.

(2) With more than one CST inoperable, restore the inoperable CST to OPERABLE status or be subcritical within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in COLD SHUTDOWN within the following 6 hours.

\* These requirements supplement the requirements of Sections 3.1.1.1.c, 3.1.1.2, 3.3.1 and 3.8.3.

\*\* HSPS operability is specified in Section 3.5.1.

## Bases

A reactor shutdown following power operation requires removal of core decay heat. Normal decay heat removal is by the steam generators with the steam dump to the condenser when RCS temperature is above 250°F and by the decay heat removal system below 250°F. Core decay heat can be continuously dissipated up to 15 percent of full power via the steam bypass to the condenser as feedwater in the steam generator is converted to steam by heat absorption. Normally, the capability to return feedwater flow to the steam generators is provided by the main feedwater system.

The main steam safety valves will be able to relieve to atmosphere the total steam flow if necessary. Below 5% power, only a minimum number of Main Steam Safety Valves need to be operable as stated in Technical Specification 3.4.1.2.1 and 3.4.1.2.2. This is to provide Steam Generator overpressure protection during hot functional testing and low power physics testing. Additionally, when the Reactor is between hot shutdown and 5% full power operation, the over power trip setpoint in the RPS shall be set to less than 5% as is specified in Technical Specification 3.4.1.2.2. The minimum number of valves required to be operable allows margin for testing without jeopardizing plant safety. Plant specific analysis shows that one Main Steam Safety Valve is sufficient to relieve reactor coolant pump heat and stored energy when the reactor is subcritical by 1% delta K/K for at least one hour. Other plant analyses show that two (2) Main Steam Safety Valves on either OTSG are more than sufficient to relieve reactor coolant pump heat and stored energy when the reactor is below 5% full power operation but had been subcritical by 1% delta K/K for at least one hour since power operation above 5% full power. According to Technical Specification 3.1.1.2a, both steam generators shall be operable whenever the reactor coolant average temperature is above 250°F. This assures that all four (4) Main Steam Safety Valves are available for redundancy. During power operations at 5% full power or above, if Main Steam Safety Valves are inoperable, the power level must be reduced, as stated in Technical Specification 3.4.1.2.3 such that the remaining safety valves can prevent overpressure on a turbine trip.

In the unlikely event of complete loss of off-site electrical power to the station, decay heat removal is by either the steam-driven emergency feedwater pump, or two half-sized motor-driven pumps. Steam discharge is to the atmosphere via the Main Steam Safety Valves and controlled atmospheric relief valves, and in the case of the turbine driven pump, from the turbine exhaust.

Both motor-driven pumps, or the steam-driven EFW pump are required initially to remove decay heat with one EFW pump eventually sufficing. If emergency feedwater is required during surveillance testing, acceptably minor operator action may be required to ensure both motor-driven pumps are available. The minimum amount of water in the condensate storage tanks, contained in Technical Specification 3.4.1.1., will allow cooldown to 250°F with steam being discharged to the atmosphere. After cooling to 250°F, the decay heat removal system is used to achieve further cooling.

### 3.6 REACTOR BUILDING

#### Applicability

Applies to the containment integrity of the reactor building as specified below.

#### Objective

To assure containment integrity.

#### Specification

- 3.6.1 Containment integrity as defined in Section 1.7, shall be maintained whenever all three of the following conditions exist:
- a. Reactor coolant pressure is 300 psig or greater.
  - b. Reactor coolant temperature is 200°F or greater.
  - c. Nuclear fuel is in the core.
- 3.6.2 Containment integrity shall be maintained when both the reactor coolant system is open to the containment atmosphere and a shutdown margin exists that is less than that for a refueling shutdown.
- 3.6.3 Positive reactivity insertions which would result in a reduction in shutdown margin to less than 1%  $\Delta$  k/k shall not be made by control rod motion or boron dilution unless containment integrity is being maintained.
- 3.6.4 The reactor shall not be critical when the reactor building internal pressure exceeds 2.0 psig or 1.0 psi vacuum.
- 3.6.5 Prior to criticality following refueling shutdown, a check shall be made to confirm that all manual containment isolation valves which should be closed are closed and are conspicuously marked.
- 3.6.6 While the reactor is critical, if a reactor building isolation valve (other than a purge valve) is determined to be inoperable in a position other than the required position, the other reactor building isolation valve in the line shall be verified to be OPERABLE. If the inoperable valve is not restored within 48 hours, the OPERABLE valve will be closed or the reactor shall be brought to HOT SHUTDOWN within the next 6 hours and to the COLD SHUTDOWN condition within an additional 30 hours.
- 3.6.7 The hydrogen recombiner shall be operable during REACTOR CRITICAL, HOT STANDBY and POWER OPERATION. With the hydrogen recombiner inoperable, restore the recombiner to operable status or bring the reactor to HOT SHUTDOWN within seven (7) days.
- 3.6.8 While containment integrity is required (see T.S. 3.6.1), if a 48" reactor building purge valve is found to be inoperable perform either 3.6.8.1 or 3.6.8.2 below.

### 3.15 AIR TREATMENT SYSTEMS

#### 3.15.1 EMERGENCY CONTROL ROOM AIR TREATMENT SYSTEM

##### Applicability

Applies to the emergency control room air treatment system and its associated filters.

##### Objective

To specify minimum availability and efficiency for the emergency control room air treatment system and its associated filters.

##### Specifications

- 3.15.1.1 Except as specified in Specification 3.15.1.3 below, both emergency treatment systems, AH-E18A fan and associated filter AH-F3A and AH-E18B fan and associated filter AH-F3B shall be operable at all times, per the requirements of Specification 3.15.1.2 below; when containment integrity is required and when irradiated fuel handling operations are in progress.
- 3.15.1.2
- a. The results of the in-place DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal absorber banks shall show <0.05% DOP penetration and <0.05% halogenated hydrocarbon penetration, except that the DOP test will be conducted with prefilters installed.
  - b. The results of laboratory carbon sample analysis shall show  $\geq 90\%$  radioactive methyl iodide decontamination efficiency when tested at 125°F, 95% R.H.
  - c. The fans AH-E18A and B shall each be shown to operate within  $\pm 4000$  CFM of design flow (40,000 CFM).
- 3.15.1.3 From and after the date that one control room air treatment system is made or found to be inoperable for any reason, reactor operation or irradiated fuel handling operations are permissible only during the succeeding 7 days provided the redundant system is verified to be OPERABLE.
- 3.15.1.4 From the date that both control room air treatment systems are made or found to be inoperable or if the inoperable system of 3.15.1.3 cannot be made operable in 7 days, irradiated fuel handling operations shall be terminated in 2 hours and reactor shutdown shall be initiated and the reactor shall be in cold shutdown within 48 hours



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 190 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

The amendment revises the TMI-1 Technical Specifications (TS) to specify an allowable outage time for the Emergency Feedwater (EFW) Pumps during surveillance activities. It also changes the requirement to test redundant components for operability to a requirement to ensure operability based on verification of completion of appropriate surveillance activities. According to the licensee, these changes, in conjunction with TSCRs 228 and 230, are being made to permit full implementation of the guidance provided to licensees regarding OPERABILITY determinations in Generic Letter (GL) 91-18. Guidance from NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," and NUREG-1430, "Standard Technical Specifications for Babcock & Wilcox Plants," was used by the licensee to develop these proposed changes.

2.0 EVALUATION

(1) Page 3-22

TS 3.3.1.3.b is modified to correct a typing error made in previous TSCR No. 222. The "±" sign between 8 ft. and 6 inches is added. This change is considered to be administrative and is acceptable.

TS 3.3.2 is modified to clarify that maintenance "or testing" shall be allowed during reactor operation on the components associated with emergency core cooling, reactor building emergency core cooling, and the reactor building spray systems. Since the associated components of a train are inoperable during maintenance or surveillance testing and the redundant trains have no change in its safety function in either case, the change is considered acceptable.

(2) Page 3-25

TS 3.4.1.1(2) is modified to provide a specified allowable outage time for the EFW pumps during surveillance testing. The 8 extra hours are requested to perform required surveillance testing. During a quarterly Heat Sink Protection System (HSPS) Train Actuation Logic Testing, one HSPS train is tested at a time. An HSPS train involves one EFW flow path and one motor-driven EFW pump (EF-P-2A or EF-P-2B) and the turbine-driven EFW pump (EF-P-1), which is common to both trains. During the testing, one flow path is made inoperable and both EFW pumps associated with that train are made inoperable. Since the licensee provides a required local operator action to return the turbine-driven EFW pump to service in a prompt manner and the motor-driven EFW pumps can be started very quickly using the control switches, the NOTE that allows the EFW pumps to be inoperable for up to 8 hours when performing surveillance testing is considered reasonable. Therefore, the staff finds the change to be acceptable.

(3) Page 3-26b

The last paragraph of the bases for TS 3.4 on this page was inadvertently changed during the processing of Amendment 133. The first sentence of the paragraph is being added to restore its original wording made in Amendment 124. This change is considered to be administrative and is acceptable.

(4) Page 3-41

TS 3.6.6 is modified to change the requirement to test a redundant reactor building (RB) isolation valve for OPERABILITY following a determination that the other valve in the line is inoperable. Instead of testing the redundant valve to verify OPERABILITY, it is verified to be OPERABLE by ensuring the appropriate surveillance is current. The staff agrees that verification of operability of the redundant valve by verifying that the required surveillance testing is current is an acceptable, and perhaps even preferable, alternative to testing the valve. GL 93-05 allowed several line item improvements to TSs as justified in NUREG-1366. Section 10.1 to GL 93-05, Enclosure 1 approved removal of TSs requiring operation of redundant systems or components in the case of an inoperable system or component on a generic basis. This concept was also approved in NUREG-1430 (September 1992). Therefore, the staff finds this change to be acceptable.

(5) Page 3-61

TS 3.15.1.3 is modified to change the requirement to test the redundant control room air treatment system when the other system is made or found to be inoperable. Instead of testing the redundant valve to verify OPERABILITY, it is verified to be OPERABLE by ensuring the appropriate surveillance is current. GL 93-05 allowed several line item improvements to TSs as justified in NUREG-1366. Section 10.1 to GL 93-05, Enclosure 1 approved removal of TSs requiring operation of redundant systems or components in the case of an inoperable system or component on a generic basis. This concept was also

approved in NUREG-1430 (September 1992). Therefore, the staff finds this change to be 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 (59 FR 17601). 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 Contributors: C. Chung, R. Hernan

Date: July 25, 1994