

April 5, 1993

Docket No. 50-289

Mr. T. Gary Broughton, Vice President  
and Director - TMI-1  
GPU Nuclear Corporation  
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Dear Mr. Broughton:

SUBJECT: ISSUANCE OF AMENDMENT - TSCR NO. 194 (TAC NO. M84593)

The Commission has issued the enclosed Amendment No. 173 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 May 19, 1992, as supplemented by letters dated November 30, 1992, January 29, and February 12, 1993.

The amendment deletes portions of the TMI-1 Radiological Environmental Technical Specifications and relocates them to controlled programs in accordance with the guidance contained in NRC Generic Letter 89-01, dated January 31, 1989.

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. 173 to DPR-50
2. Safety Evaluation

cc w/enclosures:  
See next page

*CP-1*

OFFICE	LA:PDI-4	PM:PDI-4	PD:PDI-4	OGC	
NAME	SNorris	RHernan	JStolz	WHD	
DATE	3/19/93	3/19/93	3/19/93	3/24/93	11

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Unit No. 1

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

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. 173  
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 May 19, 1992, as supplemented by letters dated November 30, 1992, January 29, and February 12, 1993, 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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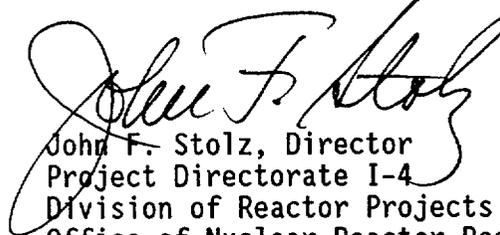
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 173, 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: April 5, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 173

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

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

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- 1.9 DELETED
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- 1.12 DOSE EQUIVALENT I-131

The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcurie/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134 and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID 14844, "Calculation of Distance Factors for Power and Test Reactor Sites". [Or in Table E-7 of NRC Regulatory Guide 1.109, Revision 1, October 1977.]

- 1.13 SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

- 1.14 DELETED

- 1.15 OFFSITE DOSE CALCULATION MANUAL (ODCM)

The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluent, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radiological Environmental Monitoring Program required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.3 and 6.9.4.

- 1.16 PROCESS CONTROL PROGRAM (PCP)

The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

- 1.17 GASEOUS RADWASTE TREATMENT

The GASEOUS RADWASTE TREATMENT SYSTEM is the system designed and installed to reduce radioactive gaseous effluent by collecting primary coolant system off gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

## 1.18 VENTILATION EXHAUST TREATMENT SYSTEM

A VENTILATION EXHAUST TREATMENT SYSTEM is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluent by passing ventilation or vent exhaust gases through charcoal absorbers and/or HEPA filters for the purpose of removing iodine or particulates from the gaseous exhaust system prior to the release to the environment. Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEMS.

## 1.19 PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions in such a manner that replacement air or gas is required to purify the confinement.

## 1.20 VENTING

VENTING is the controlled process of discharging air as gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions in such a manner that replacement air or gas is not provided. Vent used in system name does not imply a VENTING process.

## 1.21 REPORTABLE EVENT

A REPORTABLE EVENT shall be any of those conditions specified in 10 CFR 50.73.

## 1.22 MEMBER(S) OF THE PUBLIC

MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the GPU System, GPU contractors or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries.

## 1.23 SUBSTANTIVE CHANGES

SUBSTANTIVE CHANGES are those which affect the activities associated with a document or the document's meaning or intent. Examples of non-substantive changes are: (1) correcting spelling; (2) adding (but not deleting) sign-off spaces; (3) blocking in notes, cautions, etc.; (4) changes in corporate and personnel titles which do not reassign responsibilities and which are not referenced in the Appendix A Technical Specifications; and (5) changes in nomenclature or editorial changes which clearly do not change function, meaning or intent.

## 1.24

## CORE OPERATING LIMITS REPORT

The CORE OPERATING LIMITS REPORT is a TMI-1 specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.5. Plant operation within these operating limits is addressed in individual specifications.

## 1.25

## FREQUENCY NOTATION

The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.2. All Surveillance Requirements shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the surveillance interval.

TABLE 1.2FREQUENCY NOTATION

<u>NOTATION</u>	<u>FREQUENCY</u>
S	Shiftly (once per 12 hours)
D	Daily (once per 24 hours)
W	Weekly (once per 7 days)
M	Monthly (once per 31 days)
Q	Quarterly (once per 92 days)
S/A	Semi-Annually (once per 184 days)
R	Refueling Interval
P S/U	Prior to each reactor startup, if not done during the previous 7 days
P	Completed prior to each release
N/A (NA)	Not applicable
E	Once per 18 months

### 3.21 RADIOACTIVE EFFLUENT INSTRUMENTATION

#### 3.21.1 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

##### LIMITING CONDITION FOR OPERATION

---

3.21.1 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.21-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.22.1.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: At all times \*

##### ACTION:

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, immediately suspend the release of radioactive liquid effluent monitored by the affected channel or declare the channel inoperable.
- b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.21-1. Exert best efforts to return the instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Annual Effluent Release Report why the inoperability was not corrected in a timely manner.

\*For FT-84, and RM-L6, operability is not required when discharges are positively controlled through the closure of WDL-V257.

\*For RM-L12 and associated IWTS/IWFS flow interlocks, operability is not required when discharges are positively controlled through the closure of IW-V72, 75 and IW-V280, 281.

\*For FT-146, operability is not required when discharges are positively controlled through the closure of WDL-V257, IW-V72, 75 and IW-V280, 281.

##### BASES

---

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluent during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.

Bases

Section 1.25 establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillance that are performed at each refueling outage and are specified with a fuel cycle length surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillance that are not performed during refueling outages. The limitation of Section 1.25 is based on engineering judgement and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

**TABLE 3.21-1**

<b><u>INSTRUMENT</u></b>	<b><u>MINIMUM CHANNELS OPERABLE</u></b>	<b><u>ACTION</u></b>
1. Gross Radioactivity Monitors Providing Automatic Termination of Release		
a. Unit 1 Liquid Radwaste Effluent Line (RM-L6)	1	18
b. IWTS/IWFS discharge line (RM-L12)	1	20
2. [DELETED BY AMENDMENT NO. 88]		
3. Flow Rate Measurement Devices		
a. Unit 1 Liquid Radwaste Effluent Line (FT-84)	1	21
b. Station Effluent Discharge (FT-146)	1	21

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**3-98**

**Amendment No. 72, 88,173**

### 3.21.2 RADIOACTIVE GASEOUS PROCESS AND EFFLUENT MONITORING INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.21.2 The radioactive gaseous process and effluent monitoring instrumentation channels shown in Table 3.21-2 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.22.2.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: As shown in Table 3.21-2.

#### ACTION:

- a. With a radioactive gaseous process or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, immediately suspend the release of radioactive effluent monitored by the affected channel or declare the channel inoperable.
- b. With less than the minimum number of radioactive gaseous process or effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.21-2. Exert best efforts to return the instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Annual Effluent Release Report why the inoperability was not corrected in a timely manner.

#### BASES

---

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluent during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.

The low range condenser offgas noble gas activity monitors also provide data for determination of steam generator primary to secondary leakage rate. Channel operability requirements are based on an ASLB Order No. LBP-84-47 dated October 31, 1984, and as cited in 20 NRC 1405 (1984).

### 3.22 RADIOACTIVE EFFLUENT

#### 3.22.1 LIQUID EFFLUENT

##### 3.22.1.1 CONCENTRATION

##### LIMITING CONDITION FOR OPERATION

3.22.1.1 The concentration of radioactive material released at anytime from the unit to unrestricted areas (see Figure 5-3) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $3 \times 10^{-3}$  uCi/cc total activity.

APPLICABILITY: At all times

##### ACTION:

With the concentration of radioactive material released from the unit to unrestricted areas exceeding the above limits, immediately restore concentration within the above limits.

##### BASES

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluent from the unit to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures with (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to a MEMBER OF THE PUBLIC and (2) the limits of 10 CFR Part 20.106 (e) to the population. The concentration limit for noble gases is based upon the assumption the Xe-135 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

## RADIOACTIVE EFFLUENT

### 3.22.2 GASEOUS EFFLUENT

#### 3.22.2.1 DOSE RATE

#### LIMITING CONDITION FOR OPERATIONS

3.22.2.1 The dose rate due to radioactive materials released in gaseous effluent from the site (see Figure 5-3) shall be limited to the following:

- a. For noble gases: less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin, and
- b. For I-131, I-133, tritium and all radionuclides in particulate form with half lives greater than 8 days: less than or equal to 1500 mrem/yr to any organ.

APPLICABILITY: At all times.

#### ACTION:

With the release rate(s) exceeding the above limits, immediately decrease the release rate to comply with the above limit(s).

#### BASES

The specification is provided to ensure that the release rate at anytime at the site boundary from gaseous effluent from all units on the site will be within the annual dose limits of 10 CFR Part 20 for unrestricted areas. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluent will not result in the exposure of a MEMBER OF THE PUBLIC in an unrestricted area, either within or outside the site boundary, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For MEMBERS OF THE PUBLIC who may at times be within the site boundary, the occupancy of the MEMBER OF THE PUBLIC will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the exclusion area boundary. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to a MEMBER OF THE PUBLIC at or beyond the site boundary to less than or equal to 500 mrem/year to the total body or to less than or equal to 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via the cow-milk pathway to less than or equal to 1500 mrem/year for the nearest cow to the plant.

3.22.3 SOLID RADIOACTIVE WASTE  
LIMITING CONDITION FOR OPERATION

DELETED

3.23 RADIOLOGICAL ENVIRONMENTAL MONITORING

3.23.1 MONITORING PROGRAM

LIMITING CONDITION FOR OPERATION

DELETED

3-120  
(3-121 deleted)

TABLE 3.23-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

DELETED

3-122  
(3-123 thru 3-124 deleted)

RADIOLOGICAL ENVIRONMENTAL MONITORING

3.23.2 LAND USE CENSUS

LIMITING CONDITION FOR OPERATION

DELETED

TABLE 3.23-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS  
IN ENVIRONMENTAL SAMPLES

DELETED

RADIOLOGICAL ENVIRONMENTAL MONITORING

3.23.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION

DELETED

- c. To be representative of the quantities and concentrations of radioactive materials in liquid effluent, samples shall be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.
- d. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated, and be thoroughly mixed, by a method described in the ODCM, to assure representative sampling.
- e. A continuous release is the discharge of liquid wastes of a non-discrete volume; e.g., from a volume or system that has an input flow during the continuous release.
- f. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radioactive Effluent Release Report pursuant to TS 6.9.4.

Table 4.22-2 (Continued)

TABLE NOTATION

- d. Charcoal cartridges and particulate filters shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing (or after removal from sampler).
- e. Tritium grab samples shall be taken weekly from the spent fuel pool area whenever spent fuel is in the spent fuel pool.
- f. The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.22.2.1, 3.22.2.2, and 3.22.2.3.
- g. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135 and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-137, Ce-141 and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radioactive Effluent Release Report pursuant to TS 6.9.4.
- h. Applicable only when condenser vacuum is established. Sampling and analysis shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15 percent of RATED THERMAL POWER within one hour unless (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has not increased more than a factor of 3; and (2) the noble gas activity monitor shows that effluent activity has not increased by more than a factor of 3.
- i. Gross Alpha, Sr-89, and Sr-90 analyses do not apply to the Fuel Handling Building ESF Air Treatment System.
- j. If the Condenser Vent Stack Continuous Iodine Sampler is unavailable, then alternate sampling equipment will be placed in service within 48 hours or a report will be prepared and submitted within 30 days from the time the sampler is found or made inoperable which identifies (a) the cause of the inoperability, (b) the action taken to restore representative sampling capability, (c) the action taken to prevent recurrence, and (d) quantification of the release via the pathway during the period and comparison to the limits prescribed by TS 3.22.2.1.b.
- k. Applicable only when condenser vacuum is established.

4.22.3 SOLID RADIOACTIVE WASTE  
SURVEILLANCE REQUIREMENTS

4.22.3.1 SOLID RADWASTE SYSTEM

DELETED

4.22.3.2 PROCESS CONTROL PROGRAM

DELETED

#### 4.22.4 TOTAL DOSE

##### SURVEILLANCE REQUIREMENT

##### 4.22.4.1 DOSE CALCULATION

Cumulative annual dose contributions from liquid and gaseous effluents shall be determined in accordance with TS 4.22.1.2, 4.22.2.2 and 4.22.2.3, including direct radiation contributions from the Unit and from outside storage tanks, and in accordance with the methodology and parameters contained in the ODCM.

**SURVEILLANCE REQUIREMENTS**

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**4.23.1**

**DELETED**

TABLE 4.23-1

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)

DELETED

4-118  
(4-119 thru 4-120 deleted)

**SURVEILLANCE REQUIREMENTS**

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**4.23.2**

**DELETED**

**SURVEILLANCE REQUIREMENTS**

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**4.23.3**

**DELETED**

## 6.8 PROCEDURES AND PROGRAMS

- 6.8.1 Written procedures shall be established, implemented and maintained covering the items referenced below:
- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
  - b. Surveillance and test activities of equipment that affects nuclear safety and radioactive waste management equipment.
  - c. Refueling Operations.
  - d. Security Plan Implementation.
  - e. Fire Protection Program Implementation.
  - f. Emergency Plan Implementation.
  - g. Process Control Program Implementation.
  - h. Offsite Dose Calculation Manual Implementation.
  - i. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 4.15, Revision 1.
  - j. Plant Staff Overtime, to limit the amount worked by staff performing safety-related functions in accordance with NRC Policy Statement on working hours (Generic Letter No. 82-12).
- 6.8.2 Further, each procedure required by 6.8.1 above, and substantive changes thereto, shall be reviewed and approved as described in 6.5.1 prior to implementation and shall be reviewed periodically as set forth in administrative procedures.
- 6.8.3 Temporary changes to procedures of 6.8.1 above may be made provided:
- a. The intent of the original procedure is not altered;
  - b. The change is approved by two members of GPUNC Management Staff qualified in accordance with 6.5.1.14 and knowledgeable in the area affected by the procedure. For changes which may affect the operational status of unit systems or equipment, at least one of these individuals shall be a member of unit management or supervision holding a Senior Reactor Operator's License on the unit.
  - c. The change is documented, reviewed and approved as described in 6.5.1 within 14 days of implementation.

6.8.4

Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- (1) Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,
- (2) A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and
- (3) Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

6.9.3 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

- 6.9.3.1 The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

The Report shall include summaries, interpretations, and an analysis of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in: (1) the ODCM; and, (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

Note: A single submittal may be made for the station.

6.9.4 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

6.9.4.1 The Annual Radioactive Effluent Release Report covering the operations of the unit during the previous 12 months of operation shall be submitted within 60 days after January 1 of each year.

The Report shall include a summary of the quantities of radioactive liquid and gaseous effluent and solid waste released from the unit. The material provided shall be: (1) consistent with the objectives outlined in the ODCM and PCP; and, (2) in conformance with 10 CFR 50.36(a) and Section IV.B.1 of Appendix I to 10 CFR Part 50.

Note: A single submittal may be made for the station. The submittal should combine those sections that are common to both units at the station.

## 6.9.5 CORE OPERATING LIMITS REPORT

- 6.9.5.1 The core operating limits addressed by the individual Technical Specifications shall be established and documented in the CORE OPERATING LIMITS REPORT prior to each reload cycle or prior to any remaining part of a reload cycle.
- 6.9.5.2 The analytical methods used to determine the core operating limits addressed by the individual Technical Specifications shall be those previously reviewed and approved by the NRC for use at TMI-1, specifically:
- (1) BAW-10122A Rev. 1, "Normal Operating Controls," May 1984.
  - (2) BAW-10116-A, "Assembly Calculations and Fitted Nuclear Data," May 1977.
  - (3) BAW-10117P-A, "Babcock & Wilcox Version of PDQ User's Manual," January 1977.
  - (4) BAW-10118A, "Core Computational Techniques and Procedures," December 1979.
  - (5) BAW-10124A, "FLAME 3 - A Three-Dimensional Nodal Code for Calculating Core Reactivity and Power Distributions," August 1976.
  - (6) BAW-10125A, "Verification of Three-Dimensional FLAME Code," August 1976.
  - (7) BAW-10152A, "NOODLE - A Multi-Dimensional Two-Group Reactor Simulator," June 1985.
  - (8) BAW-10119, "Power Peaking Nuclear Reliability Factors," June 1977.
  - (9) BAW-10103, Rev. 3, "ECCS Analysis of B&W's 177-FA Lowered Loop NSS," July 1977.
  - (10) BAW-1915P, "Bounding Analytical Assessment of NUREG-0630 Models on LOCA kw/ft Limits With Use of FLECSET," May 1986.
  - (11) BAW-10104P-A, Rev. 5, "B&W ECCS Evaluation Model," November 1988.
  - (12) BAW-10162P-A, "TACO-3 Fuel Pin Thermal Analysis Computer Code," November 1989.
- 6.9.5.3 The core operating limits shall be determined so that all applicable limits (e.g. fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient/accident analysis limits) of the safety analysis are met.
- 6.9.5.4 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance for each reload cycle to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

6.10

RECORD RETENTION

6.10.1

The following records shall be retained for at least five years:

- a. Records of normal station operation including power levels and periods of operation at each power level.
- b. Records of principal maintenance activities, including inspection, repairs, substitution, or replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS.
- d. Records of periodic checks, tests and calibrations.
- e. Records of reactor physics tests and other special tests related to nuclear safety.
- f. Changes to procedures required by Specification 6.8.1.
- g. Records of solid radioactive shipments.
- h. Test results, in units of microcuries, for leak tests performed on licensed sealed sources.
- i. Results of annual physical inventory verifying accountability of licensed sources on record.
- j. Control Room Log Book.
- k. Shift Foreman Log Book.

6.10.2

The following records shall be retained for the duration of Operating License DPR-50 unless otherwise specified in 6.10.1 above.

- a. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Routine unit radiation surveys and monitoring records.
- d. Records of radiation exposure history and radiation exposure status of personnel, including all contractors and unit visitors who enter radioactive material areas.
- e. Records of radioactive liquid and gaseous wastes released to the environment, and records of environmental monitoring surveys.
- f. Records of transient or operational cycles for those facility components which affect nuclear safety for a limited number of transients or cycles as defined in the Final Safety Analysis Report.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the Operational Quality Assurance Plan.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of reviews by the Independent Onsite Safety Review Group.
- l. Records of analyses required by the radiological environmental monitoring program.
- m. Records of the service lives of all safety related hydraulic snubbers including the date at which the service life commences and associated installation and maintenance records.

6.10.3

The following records shall be retained for the duration of the unit Operating License:

- o. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

## 6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

## 6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203 (c)(2) of 10 CFR 20:

- a. Each High Radiation Area as defined by paragraph 20.202 (b)(3) shall be barricaded and conspicuously posted as a High Radiation Area, and personnel desiring entrance shall obtain a Radiation Work Permit (RWP). Any individual or group of individuals entering a High Radiation Area shall (a) use a continuously indicating dose rate monitoring device or (b) use a radiation dose rate integrating device which alarms at a pre-set dose level (entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them), or (c) assure that a radiological control technician provides positive control over activities within the area and periodic radiation surveillance with a dose rate monitoring instrument.
- b. Any area accessible to personnel where a major portion of the body could receive in any one hour a dose in excess of one thousand mrem shall be locked or guarded to prevent unauthorized entry. The keys to these locked barricades shall be maintained under the administrative control of the respective Radiological Controls Supervisor.

The Radiation Work Permit is not required by Radiological Controls personnel during the performance of their assigned radiation protection duties provided they are following radiological control procedures for entry into High Radiation Areas.

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 GPU Nuclear Corporation initiated changes to the PCP:

1. Shall be submitted to the NRC in the Annual Radioactive Effluent Release Report for the period in which the changes were made. This submittal shall contain:
  - a. sufficiently detailed information to justify the changes without benefit of additional or supplemental information;
  - b. a determination that the changes did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and,
  - c. documentation that the changes have been reviewed and approved pursuant to 6.8.2.
2. Shall become effective upon review and approval by GPUNC Management.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 GPU Nuclear Corporation initiated changes to the ODCM:

1. Shall be submitted to the NRC in the Annual Radioactive Effluent Release Report for the period in which the changes were made. This submittal shall contain:
  - a. sufficiently detailed information to justify the changes without benefit of additional or supplemental information;
  - b. a determination that the changes did not reduce the accuracy or reliability of dose calculations or setpoint determinations; and
  - c. documentation that the changes have been reviewed and approved pursuant to 6.8.2.
2. Shall become effective upon review and approval by GPUNC Management.

6.15 DELETED

6.16 POST-ACCIDENT SAMPLING PROGRAMS NUREG 0737 (II.B.3, II.F.1.2)

Program which will ensure the capability to accurately sample and analyze vital areas under accident conditions have been implemented.

The following programs have been established:

1. Iodine and Particulate Sampling
2. Reactor Coolant System
3. Containment Atmosphere Sampling

Each program shall be maintained and shall include the following:

1. Training of personnel,
2. Procedures, and
3. Provisions for maintenance of sampling and analysis equipment.

6.17 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS

6.17.1 GPU Nuclear Corporation initiated safety related changes to the radioactive waste system (liquid, gaseous and solid):

1. Shall be reported to the Commission in the Annual Report (Specification 6.9.1B) for the period in which the evaluation was reviewed. The discussion of each change shall contain:
  - a. A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
  - b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
  - c. A detailed description of the equipment, components and processes involved and the interfaces with other plant systems;
  - d. An evaluation of the change which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the license application and amendments thereto;
  - e. An evaluation of the change which shows the expected maximum exposures to individuals in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;
  - f. A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and in solid waste, to the actual releases for the period prior to when the changes are to be made;
  - g. An estimate of the exposure to plant operating personnel as a result of the change; and
  - h. Documentation of the fact that the change was reviewed and approved.
2. Shall become effective upon review and approval in accordance with Section 6.5.1.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 173 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 May 19, 1992, as supplemented November 30, 1992, January 29, and February 12, 1993, GPU Nuclear Corporation (GPUN/licensee) proposed to incorporate programmatic controls for radiological effluents and radiological environmental monitoring in the Administrative Controls section of the Three Mile Island, Unit 1 (TMI-1) Technical Specifications (TS) consistent with the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50. At the same time, the licensee proposed to transfer portions of the procedural details of the Radiological Effluent Technical Specifications (RETS) from the TS to the Offsite Dose Calculation Manual (ODCM) or to the Process Control Program (PCP) for solid radioactive wastes as appropriate. With these changes, the specifications related to RETS reporting requirements were simplified. Finally, changes to the definitions of the ODCM and PCP were proposed consistent with these changes. Guidance on these proposed changes was provided to all power reactor licensees and applicants by Generic Letter 89-01 dated January 31, 1989.

The January 29, and February 12, 1993 letters provided errata pages that did not change the initial no significant hazards consideration determination or expand the scope of the original Federal Register notice.

## 2.0 EVALUATION

The licensee's proposed changes to the TS are in accordance with the guidance provided in Generic Letter 89-01 and are addressed below.

- (1) The licensee has proposed to incorporate programmatic controls for radioactive effluents and radiological environmental monitoring in Specification 6.8.4, "Procedures and Programs," of the TS as noted in the guidance provided in Generic Letter 89-01. The programmatic controls ensure that programs are established, implemented, and maintained to ensure that operating procedures are provided to control radioactive effluents consistent with the requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50.

- (2) The licensee has confirmed that the detailed procedural requirements addressing Limiting Conditions for Operation, their applicability, remedial actions, associated surveillance requirements, or reporting requirements for the following specifications have been prepared to implement the relocation of these procedural details to the ODCM or PCP. These changes to the ODCM and PCP have been prepared in accordance with the new Administrative Controls in the TS on changes to the ODCM and PCP so that they will be implemented in the ODCM or PCP when the proposed amendment is issued.

SPECIFICATION

TITLE

3/4.22.3	RADIOACTIVE EFFLUENTS: SOLID RADIOACTIVE WASTES
3/4.22.4	RADIOACTIVE EFFLUENTS: TOTAL DOSE
3/4.23.1	RADIOLOGICAL ENVIRONMENTAL MONITORING: MONITORING PROGRAM
3/4.23.2	RADIOLOGICAL ENVIRONMENTAL MONITORING: LAND USE CENSUS
3/4.23.3	RADIOLOGICAL ENVIRONMENTAL MONITORING: INTERLABORATORY COMPARISON PROGRAM
6.9.3.1	ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
6.9.4.1	SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
6.17	MAJOR CHANGES TO LIQUID, GASEOUS, AND SOLID RADWASTE TREATMENT SYSTEMS

These procedural details that will be removed from the TS are not required by the Commission's regulations to be included in TS. They have been prepared for incorporation in the ODCM or PCP upon issuance of the proposed license amendment and may be subsequently changed by the licensee without prior NRC approval. Changes to the ODCM and PCP are documented and will be retained for the duration of the operating license in accordance with Specification 6.10.3o.

- (3) The licensee has proposed replacing the existing specifications in the Administrative Controls section of the TS for the Annual Radiological Environmental Operating Report, Specification 6.9.3.1, for the Semiannual (now annual) Radioactive Effluent Release Report, Specification 6.9.4.1, for the Process Control Program, Specification 6.13, and for the Offsite Dose Calculation Manual, Specification 6.14, with the updated TS that were provided in Generic Letter 89-01.
- (4) The licensee has requested a deletion to Part "b" of the ACTION statement for TS 3.22.1.1, "Liquid Effluent - Concentration," and TS 3.22.2.1, "Gaseous Effluent - Dose Rate." Part "b" requires the plant to be shutdown, if releases of liquid or gaseous effluent cannot be immediately restored to within TS limits. This requested deletion is consistent with NUREG-1301, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors." The licensee has also proposed that the Bases reference to infant be revised to child to be consistent with NUREG-1301.

The licensee provided a supplement to the original amendment request on November 30, 1992, to incorporate changes resulting from NRC-initiated revisions to 10 CFR 36(a)(2) made effective on October 1, 1992. This rule change revised effluent release reporting requirements from semiannual to annual. Conforming changes were proposed to the TMI-1 TS. These changes are considered to be strictly administrative to comply with changes to the NRC's regulations.

On the basis of the above, the staff finds that the changes included in the proposed TS amendment request are consistent with the guidance provided in Generic Letter 89-01. Because the control of radioactive effluents continues to be limited in accordance with operating procedures that must satisfy the regulatory requirements of 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50, the NRC staff concludes that this change is administrative in nature and there is no impact on plant safety as a consequence. Accordingly, the staff finds the proposed changes 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 relates to changes in recordkeeping, reporting, or administrative procedures or requirements. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on the Commission's finding (57 FR 61112). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). 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: J. Zimmerman  
T. Dunning

Date: April 5, 1993