



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

Docket
File

February 10, 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

Dear Mr. Broughton:

SUBJECT: ISSUANCE OF AMENDMENT - TSCR NOs. 226 and 233
(TAC NOs. M86715 AND M88380)
CORRECTION OF AMENDMENTS 177 AND 180 (TAC NOs. M86236 and M88060)

The Commission has issued the enclosed Amendment No. 182 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1), in response to your letters dated May 26 and December 2, 1993.

The amendment revises the TMI-1 Technical Specifications (TS) to (1) correct the definition of flood stage and (2) remove the limiting conditions for operation (LCO) and surveillance requirements for the Chlorine Detection System (CDS). The current TMI-1 TS references the Nagle Street Bridge in Harrisburg as the TMI-1 flood stage. Because this bridge was underwater during the 1972 flooding and was abandoned by the United States Geological Survey, the reference datum point location will be specified as the Susquehanna River Gage in Harrisburg. TMI-1 has stopped using a chlorine-gas-based system for slime, bacteria, and algae control in the Circulating Water and River Water Systems. It was the onsite usage of large chlorine containers for this purpose that required installation of the CDS. Because chlorine is no longer used in this manner and quantity, and because the maximum size of chlorine containers is administratively controlled to a much smaller size than previously used, the TS requirements for the CDS are no longer appropriate.

Although not requested in either of the cited TSCRs, the staff is also making editorial corrections to two TS pages by its own initiative. These editorial errors were made when Amendment Nos. 177 and 180 were issued. Neither of these corrections require a technical or safety finding by the staff.

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Mr. T. Gary Broughton

- 2 -

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. 182 to DPR-50
2. Safety Evaluation

cc w/enclosures:
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Mr. T. Gary Broughton

- 2 -

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,



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

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2. Safety Evaluation

cc w/enclosures:

See next page

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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. 182
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by GPU Nuclear Corporation, et al. (the licensee), dated May 26 and December 2, 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.

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. 182, 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.

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: February 10, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 182

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

ii
3-40f
3-59
3-105
3-106
4-7a

Insert

ii
3-40f
3-59
3-105
3-106
4-7a

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3.5.6 Deleted



3.14 FLOOD

3.14.1 PERIODIC INSPECTION OF THE DIKES AROUND TMI

Applicability

Applies to inspection of the dikes surrounding the site.

Objective

To specify the minimum frequency for inspection of the dikes and to define the flood stage after which the dikes will be inspected.

Specification

3.14.1.1 The dikes shall be inspected at least once every six months and after the river has returned to normal, following the condition defined below:

- a. The level of the Susquehanna River exceeds flood stage; flood stage is defined as elevation 307 feet at the Susquehanna River Gage at Harrisburg.

Bases

The earth dikes are compacted to provide a stable impervious embankment that protects the site from inundation during the design flood of 1,100,000 cfs. The rip-rap, provided to protect the dikes from wave action and the flow of the river, continues downward into natural ground for a minimum depth of two feet to prevent undermining of the dike (References 1 and 2).

Periodic inspection, and inspection of the dikes and rip-rap after the river has returned to normal from flood stage, will assure proper maintenance of the dikes, thus assuring protection of the site during the design flood.

References

- (1) UFSAR, Section 2.6.5 - "Design of Hydraulic Facilities"
- (2) UFSAR, Figure 2.6-17 - "Typical Dike Section"

TABLE 3.21-2
(Continued)

TABLE NOTATION

- * At all times.
- ** During waste gas holdup system operation.
- *** Operability is not required when discharges are positively controlled through the closure of WDG-V47 and where RM-A8 (or RM-A4 and RM-A6), FT-149, and FT-150 are operable.
- **** During Fuel Handling Building ESF Air Treatment System Operation.
- # At all times during containment purging.
- ## At all times when condenser vacuum is established.

ACTION 25 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank may be released to the environment provided that prior to initiating the release:

1. At least two independent samples of the tank's contents are analyzed in accordance with Table 4.22-2, Item A, and
2. At least two technically qualified members of the Unit staff independently verify the release rate calculations and verify the discharge valve lineup.
3. The Operations & Maintenance Director, Unit 1, shall approve each release.

Otherwise, suspend release of radioactive effluent via this pathway.

ACTION 26 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.

ACTION 27 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 12 hours and the initial samples are analyzed for gross activity (gamma scan) within 24 hours after the channel has been declared inoperable. If RM-A9 is declared inoperable, see also Specification 3.5.1, Table 3-5.1, Item C.3.f.

- ACTION 30
1. With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, a grab sample shall be collected and analyzed for the inoperable gas channel(s) at least once per 24 hours. With both channels inoperable, a grab sample shall be collected and analyzed for the inoperable gas channel(s):
 - (a) at least once per 4 hours during degassing operations.
 - (b) at least once per 24 hours during other operations (e.g. Feed and Bleed).

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 ten times the concentrations specified in 10 CFR Part 20.1001-20.2401, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 3×10^{-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 ten times the concentration levels specified in 10 CFR Part 20.1001-20.2401, Appendix B, Table 2. 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 20.1301 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.

TABLE 4.1-1 (Continued)

<u>CHANNEL DESCRIPTION</u>	<u>CHECK</u>	<u>TEST</u>	<u>CALIBRATE</u>	<u>REMARKS</u>
49. Saturation Margin Monitor	S(1)	M(1)	R	(1)When T_{ave} is greater than 525°F.
50. Emergency Feedwater Flow Instrumentation	NA	M(1)	F	(1)When T_{ave} is greater than 250°F.
51. Heat Sink Protection System				
a. EFW Auto Initiation Instrument Channels				(1)Includes logic test only.
1. Loss of Both Feedwater Pumps	NA	Q(1)	F	
2. Loss of All RC Pumps	NA	Q(1)	R	
3. Reactor Building Pressure	NA	Q	F	
4. OTSG Low Level	W	Q	R	
b. MFW Isolation OTSG Low Pressure	NA	Q	R	
c. EFW Control Valve Control System				
1. OTSG Level Loops	W	Q	R	
2. Controllers	W	NA	R	
d. HSPS Train Actuation Logic	NA	Q(1)	R	
52. Backup Incore Thermocouple Display	M(1)	NA	R	(1)When T_{ave} is greater than 250°F.
53. Deleted				
54. RCS Inventory Trending System				
a. Level	NA	NA	F	
b. Void Fraction	W	NA	F	

Amendment No. 78, 105, 124, 135, 137, 147, 175, 182
 4-7a



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 182 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 letters dated May 26 and December 2, 1993, the GPU Nuclear Corporation (the licensee) submitted requests for changes to the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) Technical Specifications (TS). Both Technical Specification Change Requests (TSCRs) involve changes to the plant TS that are primarily administrative in nature. Because of the similarity of these two requests, the NRC staff has elected to issue one license amendment in the interest of efficiency. The requested changes would revise the current TMI-1 TS to (1) correct the definition of flood stage and (2) remove the limiting conditions for operation and surveillance requirements for the Chlorine Detection System (CDS).

2.0 EVALUATION

2.1 Change in the definition of flood stage (TS 3.14.1.1) - TSCR No. 226

The current TS 3.14.1.1 defines flood stage as an elevation of 307' at the Nagle Street Bridge in Harrisburg, Pennsylvania. The Nagle Street Bridge, used by the United States Geological Survey (USGS) between October 1, 1928, and August 31, 1975, was underwater during the 1972 flood and was thereafter abandoned by the USGS as the reference point. The licensee proposes to change the plant TS to make the definition consistent with the existing river level gaging equipment. Reference will be made to the Susquehanna River Gage at Harrisburg. The datum reference for both the Nagle Street Bridge and the Susquehanna River Gage is the same. The staff finds that the proposed change to the plant TS is administrative and requires no technical review. There is no change involving hardware or operating practices associated with this TSCR.

Based on above, the staff finds the change to TS 3.14.1.1 to be acceptable.

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2.2 Deletion of the CDS from the plant TS (TS 3.5.6) - TSCR NO. 233

Removal of the gaseous chlorination systems for the Circulating Water and River Water Systems eliminated the need for a CDS which was designed to automatically isolate the Control Room Building Ventilation System (CBVS) in the event of an accidental onsite release of chlorine from a one-ton storage cylinder.

TMI-1 originally used a chlorine-gas-based system to prevent the growth of slime, bacteria and algae in the Circulating Water and River Water Systems. For this purpose, TMI-1 stored liquid chlorine on-site at two locations, the River Water Chlorinator House and the Unit 1 Circulating Water Chlorinator House. Since 2,000 pound chlorine storage containers were stored at each location, TMI-1 was required to install a CDS that met the guidelines of Regulatory Guide (RG) 1.95, Rev. 1. This requirement was imposed by NUREG-0737, Item III.D.3.4, which dealt with control room habitability. The design basis of the CDS was to alarm and automatically isolate the control room in the event of an onsite chlorine gas release.

The CDS was comprised of two independent instrumentation channels with redundant detectors located at both the River Water Chlorinator House and the Air Intake Structure. The CDS was designed to provide interlocks with the CBVS for isolation and signals for control room alarms. The CDS was provided with redundant Class 1E electrical power supplies. The interlocks and alarms were redundant and were designed such that failure of one instrumentation channel would not prevent the CDS from performing its safety function.

The CDS was designed so that the human toxicity limits of 15 parts per million (ppm), by volume ($45\text{mg}/\text{m}^3$), were not exceeded in the control room within 2 minutes after the operators were made aware of the presence of chlorine. The control room operators would be alerted to a chlorine release at any remote detector which allowed them 2 minutes to don emergency breathing apparatus. A chlorine concentration of 5 ppm at any remote detector initiated isolation of the CBVS within 10 seconds.

The TSCR states that TMI-1 has stopped using chlorine for the intermittent shock treatment of the Circulating Water and River Water Systems and has removed the one ton chlorine storage cylinders from the TMI site. TMI-1 has also implemented administrative controls that prohibit the procurement and delivery of chlorine cylinders exceeding 150 pounds. The sewage treatment system still uses 150 pound chlorine cylinders, but this facility is greater than 100 meters from the CBVS air intake structure.

The licensee has reviewed information in the 1987 TMI-1 Probabilistic Risk Assessment (PRA) to estimate the impact on calculated core damage frequency (CDF) due to chlorine releases from the sewage treatment plant. The licensee concluded the values assumed in the review were conservative and the contribution of this scenario to CDF was negligible.

With the removal and the prohibition of delivery of one ton chlorine cylinders at TMI-1, the staff finds that the threat of an onsite chlorine gas release contributing to core damage and a resultant offsite radiological release is no longer considered credible. Therefore, the TS limiting condition for operation and surveillance requirements for the CDS are no longer required.

Based on above, the staff finds the deletion of TS 3.5.6 to be acceptable. The changes on pages ii and 4-7a reflect elimination of TS 3.5.6.

Although not requested in either of the cited TSCRs, the staff is making editorial corrections to two TS pages by its own initiative. When Amendment No. 177 was issued, the reference to "FR-151" should have been omitted from page 3-105 in the "****" footnote to Table 3.21-2. When Amendment No. 180 was issued, the first sentence of the bases for TS 3.22.1 on TS page 3-106 incorrectly referenced "10 CFR part 20.1001-20.2041." The correct reference is "...-20.2401." Neither of these corrections require a technical or safety finding by the staff.

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 (58 FR 59750 and 59 FR 621). 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: C. Chung

Date: February 10, 1994