



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

50-289

April 15, 1999

Mr. James W. Langenbach, Vice President  
and Director, TMI  
GPU Nuclear, Inc.  
P.O. Box 480  
Middletown, PA 17057

SUBJECT: THREE MILE ISLAND, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:  
REVISED ATMOSPHERIC DISPERSION FACTORS (TAC NO. MA3845)

Dear Mr. Langenbach:

The Commission has issued the enclosed Amendment No. 210 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit No. 1, (TMI-1) in response to your application dated October 15, 1998, as supplemented February 3 and February 12, 1999.

The amendment approves a revision to the TMI-1 Updated Final Safety Analysis Report (UFSAR) for use of revised atmospheric dispersion factors (X/Q) (obtained by utilizing recent meteorological and population data) in determining Chapter 14 postulated accident analysis radiological dose consequences at the Technical Specification Section 5.1.1 defined exclusion area boundary (EAB) and low population zone (LPZ).

The staff notes that in your December 3, 1998, application for the sale and license transfer of TMI-1 to AmerGen, this amendment was identified as one that must be completed by April 15, 1999, in order to support the sale and transfer. Sufficient justification was not provided in either the December 3, 1998, application or in your October 15, 1998, application for this amendment to support such a high priority and accelerated review schedule. The staff decided, nonetheless, to support your schedule.

The staff further notes that the review was not as straightforward as you had indicated in your initial submittal, in that some of the data provided was not valid as discussed previously with your staff by telecon. The above information may result in a Plant Issue Matrix (PIM) entry by Region I when that document is forwarded to you following completion of its semi-annual performance review at your facility.

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April 15, 1999

J. Langenbach

- 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:

Timothy Colburn, Sr. Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosures: 1. Amendment No. 210 to DPR-50  
2. Safety Evaluation

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DATE	4/14/99		4/14/99		03/29/99		4/14/99			

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J. Langenbach

- 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,



Timothy Colburn, Sr. Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosures: 1. Amendment No. 210 to DPR-50  
2. Safety Evaluation

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DATED: April 15, 1999

AMENDMENT NO. 210 TO FACILITY OPERATING LICENSE NO. DPR-50 THREE MILE ISLAND

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J. Langenbach  
Three Mile Island Nuclear Station, 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, INC.

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

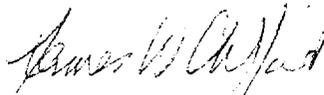
Amendment No. 210  
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission or NRC) has found that:
  - A. The application for amendment by GPU Nuclear, Inc., et al. (the licensee) dated October 15, 1998, as supplemented February 3 and 12, 1999, 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, changes to the Updated Final Safety Analysis Report (UFSAR) to reflect the use of revised atmospheric dispersion factors (X/Q) (obtained by utilizing recent meteorological data) for UFSAR Chapter 14 postulated accident analysis radiological dose consequences as set forth in the application for amendment by GPU Nuclear, Inc., dated October 15, 1998, as supplemented February 3 and 12, 1999, are authorized.
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



James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: April 15, 1999



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 210 TO FACILITY OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

PENNSYLVANIA ELECTRIC COMPANY

GPU NUCLEAR, INC.

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

1.0 INTRODUCTION

By letter dated October 15, 1998, General Public Utilities Nuclear, Inc. (the licensee), submitted an application for approval of a proposed change to the Updated Final Safety Analysis Report (UFSAR) for the Three Mile Island, Unit 1, (TMI-1) nuclear power plant. The proposed change will amend the atmospheric dispersion ( $\chi/Q$ ) values and conforming dose conversions for the exclusion area boundary (EAB) and low population zone (LPZ) in some of the postulated accident dose consequence assessments. By letters dated February 3 and 12, 1999, the licensee submitted additional information regarding the proposed change. The revised  $\chi/Q$  values and resultant dose estimates are higher than those previously calculated for the postulated accidents to which they apply. The February 3 and 12, 1999, letters were within the scope of the original application and did not change the staff's no significant hazards consideration determination.

2.0 EVALUATION

The licensee has proposed a revision to some of the  $\chi/Q$  values using the methodology described in Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants," to ensure consistency with the TMI-1 EAB and LPZ distances defined in Section 5.1.1 of the TMI-1 Technical Specifications (TS). Previous calculations assumed a variable EAB. In addition, the licensee has used a larger population of more recent meteorological data to provide a better statistical representation of meteorological conditions in the site vicinity than the data used in the previous calculations.

The licensee performed calculations to determine  $\chi/Q$  values at the EAB and LPZ using onsite meteorological data measured during calendar years 1992, 1993, 1995, and 1996. Wind measurements at the 30.3 meter level were adjusted to represent winds at the 10 meter level. Atmospheric stability was based upon delta-temperature measurements made between the 45.5 and 10 meter levels. The above  $\chi/Q$  calculations were made on a direction-dependent

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basis assuming a fixed EAB of approximately 610 meters and an LPZ distance of approximately 3200 meters (two miles) as described in the TMI-1 technical specifications (Figure 5-1 indicates the exclusion area is a stretched circle centered equidistant between the TMI-1 and TMI-2 reactor buildings with a circular radius of 610 meters centered at each reactor building). Distances were then calculated to represent the minimum distance from the edge of the TMI-1 reactor building to the EAB or LPZ in each of the 16 direction sectors. Calculations were made for each hour of the 4-year period and cumulative probability distributions constructed for each of the sectors. The larger of the maximum 0.5 percentile direction-dependent and 5 percentile direction-independent  $\chi/Q$  value was chosen as the representative  $\chi/Q$  value. The highest 1-hour 0.5 percentile  $\chi/Q$  value calculated for the EAB was determined to be  $8.0 \text{ E-4 sec/m}^3$  at a distance of 588 meters in the North sector.  $\chi/Q$  values for the LPZ for longer time periods were determined by plotting a straight-line log-log interpolation between the 1-hour  $\chi/Q$  plotted at 2 hours and the annual average  $\chi/Q$  values. The direction in which the selected  $\chi/Q$  values occurred as shown below varies over the time periods.

The staff reviewed the licensee's analysis and performed confirmatory calculations using the atmospheric dispersion model described in Regulatory Guide 1.145 and information provided by the licensee. The licensee's estimates are approximately 10 to 20 percent lower than the staff's calculations and the directional sector in which the maximum value occurred varied dependent upon the period examined. The staff concludes that these variances are due to differences in the specifics of the calculational procedures, including use of different computer codes. The staff further concludes that these differences are not significant and that the licensee's calculations are acceptable. The results are as follows:

<u>Accident Period</u>	<u>Location</u>	<u>Licensee's Revised <math>\chi/Q</math> s (<math>\text{s/m}^3</math>)</u>	<u>Staff <math>\chi/Q</math>s (<math>\text{s/m}^3</math>)</u>
0 - 2 hrs	EAB	$8.0 \text{ E-4}$	$8.3 \text{ E-4}$
0 - 2 hrs	LPZ	$1.4 \text{ E-4}$	
2 - 8 hrs	LPZ	$6.0 \text{ E-5}$	
0 - 8 hrs	LPZ		$6.2 \text{ E-5}$
8 - 24 hrs	LPZ	$3.9 \text{ E-5}$	$4.1 \text{ E-5}$
1 - 4 days	LPZ	$1.6 \text{ E-5}$	$1.7 \text{ E-5}$
4-30 days	LPZ	$4.0 \text{ E-6}$	$4.9 \text{ E-6}$

The licensee did not re-analyze the radiological consequences resulting from the design basis accidents analyzed in Chapter 14 of the TMI-1 UFSAR. Instead, the licensee recalculated the radiological consequences by the ratio of the revised  $\chi/Q$  to the  $\chi/Q$  in the UFSAR. Since the radiological consequences are directly proportional to  $\chi/Q$ , the staff finds that the direct conversion of the doses in the UFSAR is acceptable. Therefore, the staff has determined that the proposed revision of the  $\chi/Q$  values and conforming dose conversions is acceptable. The doses resulting from the revised  $\chi/Q$  values are being reviewed under a separate licensing action.

### 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 a requirement 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, and no significant change in the types, of any 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 (63 FR 64117). 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: L. Brown

Date: April 15, 1999