



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.

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Date: February 10, 1994