



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 199 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 24, 1995, as supplemented July 24, 1995, the GPU Nuclear Corporation (the licensee) submitted a request for changes to the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) Technical Specifications (TSs). The requested changes would revise the TSs to extend the test interval for the source range neutron flux instrumentation from 7 days prior to startup to 6 months prior to startup. The July 24, 1995, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

Section 3.3.9 of NUREG-1430, Rev. 1, "Improved Standard Technical Specifications for Babcock & Wilcox Plants" (STS), requires a surveillance for the source-range neutron flux instrumentation channels which includes a channel calibration (excluding neutron detectors) every 18 months. In the proposed amendment, the licensee requested that this calibration interval be increased from 7 days prior to plant startup to within 6 months prior each reactor plant startup. The licensee used manufacturer's data in lieu of statistical observation to address instrument drift and the effect of the increased surveillance interval on instrument errors. The proposed 6-month interval prior to reactor start-up is more conservative than the NUREG-1430 requirement because components are being tested during plant operation and there may be more than one reactor start-up in a refueling cycle (mode change to start-up from hot standby, hot or cold shutdown).

The amendment request serves only to replace the 7-day test requirement for the source range nuclear instrumentation (NI) with a requirement to test these NI channels within 6 months prior to each reactor startup, as indicated in TS Table 4.1-1, Item 6. The extension to 6 months prior to a reactor startup is based on the GAMMA-METRICS, Inc. specification that the source range NI equipment exhibits a maximum drift rate of $\pm 0.5\%$ of span over 6 months. The source range NI test verifies the operation and accuracy of the electronics, excluding the detector, and includes: (i) power supply voltages, (ii) built-in test features, which are used to simulate counts and count rates and to check the accuracy of the electronics, panel meters, and the computer, and (iii) bistable setpoints and their outputs are tested. The proposed channel test for the source NI is equivalent to the calibration test (excluding the detectors) of NUREG-1430, Rev. 1 except that the TMI-1 TSs presently requires the test to be done 7-days prior to reactor startup. The STS requires a calibration of the same equipment to be done on a refueling interval, which would mean every 24 months for TMI-1 because of the 24-month refueling cycle for TMI-1.

In Bases Section 3.8 of the TMI-1 TSs states that "Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition during refueling and fuel loading activities." Testing of the source range channels 6 months prior to reactor restart is acceptable based on the 0.5% drift specified by GAMMA-METRICS, Inc. and will have no impact on continuous monitoring capability, nor will it impact the ability to provide immediate indication of an unsafe condition during refueling.

During the 7R refueling outage, the source-range monitors were replaced by new monitors manufactured by GAMMA-METRICS, Inc. Thus far, the licensee has noticed very little instrument drift during operation and testing conducted during outages 8R, 9R, and 10R. The proposed changes do not involve any physical change to the plant. The source-range monitors do not provide any inputs to the reactor protection system and no credit is taken for the source-range monitors in the accident analysis. Furthermore, no changes were required in safety system setpoints or safety analysis. The licensee used the combination of the manufacturer's data and the results of tests conducted during the past three refueling outages to determine that the effects of increased surveillance intervals on instrument drift and its effect on safety. The staff reviewed this information and concludes that the licensee has adequately analyzed the effect of increased surveillance intervals on instrument drift and its effect on safety.

The proposed amendment includes:

- A. TS page 4-3, Table 4.1-1, Instrument Surveillance Requirements, Item 6: Replace notation "P S/U" which stands for "Prior to each reactor startup, if not done during the previous 7 days" by "P S/A" which stands for "Within six (6) months prior to each reactor startup."
- B. TS page 1-8, Table 1.2: Add notation "P S/A".

Finally, the licensee has evaluated the effect of the increase in the surveillance interval on safety and has concluded that no effect exists. The licensee has documented very small instrument drift during the past three refueling outages and surveillance data do not invalidate this conclusion. Performance of the source range NI test described above on the proposed 6-month interval is more conservative than the calibration interval of the STS. This change will have no impact on any TS governing the safety functions and requirements for the source range instrumentation. TSs 3.5.1.5 and 3.5.5 ensure that the NIs are operable prior to startup and that the equipment is functional with respect to its safety requirements. Also, the small incremental drift seen between the time of conducting the surveillance and startup will have no impact on nuclear safety. The staff reviewed this information and finds that the proposed TS changes do not have a significant effect on safety and are, therefore, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, a good faith effort was made to contact the Pennsylvania State official about the proposed issuance of the amendment.

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 and changes surveillance requirements. 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 (60 FR 32365). 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 consideration 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: November 24, 1995