



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 183 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

The NRC issued GL 90-02 on January 29, 1990, to implement a line-item improvement to plant Technical Specifications (TSs) by providing alternate requirements for fuel assemblies in the design features section of the TSs. The generic letter states that, on a plant-specific basis, "the staff has approved changes to these requirements that provide flexibility for improved fuel performance by permitting timely removal of fuel rods that are found to be leaking during a refueling outage or are determined to be probable sources of future leakage." The NRC issued Supplement 1 to GL 90-02 on July 31, 1992, to clarify the limitations on the application of NRC-approved analytical methods related to fuel assembly reconstitution. Supplement 1 also withdrew and replaced the model TS recommended in the initial GL 90-02 to be consistent with realistic reconstitution configurations. The model TS change in GL 90-02, Supplement 1, is also reflected in NUREG-1430, Revision 0 (September 1992), which is the Standard TS for plants of the Babcock & Wilcox (B&W) design.

In a separate action, the NRC issued a letter to the B&W Owners Group on April 12, 1993, approving use of B&W Topical Report No. BAW-2149, "Evaluation of Replacement Rods in BWFC Fuel Assemblies," as a basis for fuel assembly reconstitution for reload applications.

The GPU Nuclear Corporation (the licensee) submitted a request on August 26, 1993, for changes to the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) TSs. The requested changes would revise the TMI-1 TSs to accommodate limited fuel reconstitution based on NRC Generic Letter (GL) 90-02, Supplement 1.

2.0 EVALUATION

The approval of reconstitution methodology in BAW-2149 is only applicable for those fuel assembly designs which incorporate no more than ten solid type 304 stainless steel replacement rods. The licensee's request states that the TS changes would provide flexibility for improved fuel performance by permitting timely removal of fuel rods found to be leaking during a refueling outage or determined to be possible source of future leakage. The improvement in fuel performance program would provide for reductions in future occupational radiation exposure and plant radiological releases. The proposed changes also add a provision for the use of a limited number of lead test assemblies in non-limiting core regions.

The proposed change to TMI-1 TS 5.3.1.1 (Page 5-4) is a line-item TS change and is essentially consistent with the guidance contained in NRC GL 90-02, Supplement 1 (with one minor exception discussed below), and with NUREG-1430, Revision 0. In a telephone call on December 17, 1993, the licensee agreed to clarify its request by replacing the words "zirconium alloy" with the words "zircaloy and ZIRLO." This clarification is within the scope of the action noticed in the Federal Register on November 10, 1993, and does not alter the staff's initial determination of no significant hazards determination. Therefore, the wording of the TS change approved by this amendment would be slightly different than that requested by the licensee.

As noted in the licensee's submittal, the use of material other than type 304 stainless steel, zircaloy or ZIRLO for fuel assembly reconstitution would require a formal exemption from NRC regulations. Specifically, 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light water nuclear power reactors," specifies "zircaloy or ZIRLO" cladding material in the core. ZIRLO is the trade name for a specific zirconium alloy and was incorporated into the NRC's regulations on August 31, 1992. The licensee's amendment request used the words "zirconium alloy" to describe the cladding material. The NRC staff's position is that the TS design description in Section 5.3.1.1 should also state "zircaloy or ZIRLO" instead of "zirconium alloy" to be consistent with 10 CFR 50.46. The licensee agreed to this minor change during a telephone call on December 17, 1993.

The reconstitution methodology in BAW-2149 has been found acceptable by the NRC in that it satisfies the generic fuel design criteria described in Section 4.2 of the Standard Review Plan. Fuel assemblies are limited to those fuel designs that have been analyzed with applicable NRC-approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. Neutronic, thermal-hydraulic, and mechanical analyses, demonstrating that the inclusion of filler rods in fuel assemblies with the actual configurations and core locations chosen for specific reload fuel cycle is acceptable with respect to overall fuel performance and safety considerations. The staff approved the methodology used in BAW-2149 for this purpose using only solid Type 304 stainless steel replacement rods and no more than 10 such rods per fuel assembly. As discussed above, the methodology for fuel reconstitution using other than Type 304 stainless steel, zircaloy or ZIRLO would also require an exemption from the regulations. The latest generation

of fuel assemblies used at TMI-1 are specifically designed to allow fuel reconstitution.

With the one minor change discussed above incorporated into the proposed TS revision, the staff finds that the licensee's request complies with the guidance provided in GL 90-02, Supplement 1. On that basis, we conclude that the proposed changes to TMI-1 TS 5.3.1.1 are 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 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 59751). 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: March 15, 1994