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May 28, 1993
C311-93-2081

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station Unit 1, (TMI-1)
Docket No. 50-289
Operating License No. DPR-50
Technical Specification Change Request No. 206, Supplement 1
24-Month Cycle Surveillance Extensions

In accordance with 10 CFR 50.4(b)(1), enclosed is Technical Specification Change Request (TSCR) No. 206, Supplement 1.

Also enclosed is the Certificate of Service for this request certifying service to the chief executives of the township and county in which the facility is located, as well as the designated official of the Commonwealth of Pennsylvania Bureau of Radiation Protection.

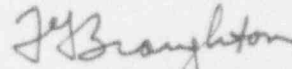
TSCR 206 proposed changes to the current Technical Specifications to implement a 24-month plant refueling cycle which includes an operating cycle and one refueling/maintenance outage. Subsequent to this submittal of June 24, 1992, the NRC staff requested that the station battery load test (TS 4.6.2.d) be performed annually once a station battery had reached 85% of expected life. Since plant procedures already have provisions for station battery replacement, we propose to include a replacement criteria in the Technical Specifications in lieu of the annual test. This Supplement 1 to TSCR 206 adds this new requirement. Except for the change identified by this Supplement, the balance of the TSCR 206 remains as previously proposed.

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Pursuant to 10 CFR 50.91(a)(1), enclosed is an analysis applying the standards in 10 CFR 50.92 to make a determination of no significant hazards considerations.

Sincerely,



T. G. Broughton
Vice President and Director, TMI-1

DJ/plp

Enclosures: (1) Technical Specification Change Request No. 206,
Supplement 1
(2) Certificate of Service for Technical Specification
Change Request No. 206, Supplement 1

cc: Administrator, Region I
TMI-1 Senior Resident Inspector
TMI-1 Senior Project Manager

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

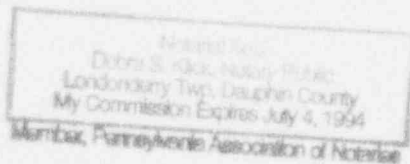
COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF DAUPHIN)

BY:

J. S. Brant

Sworn and subscribed before me this
28th day of May, 1993.

Debra S. Kline
Notary Public



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF
GPU NUCLEAR CORPORATION

DOCKET NO. 50-289
LICENSE NO. DPR-50

CERTIFICATE OF SERVICE

This is to certify that a copy of Technical Specification Change Request No. 206, Supplement 1, to Appendix A of the Operating License for Three Mile Island Nuclear Station Unit 1, has, on the date given below, been filed with executives of Londonderry Township, Dauphin County, Pennsylvania; Dauphin County, Pennsylvania; and the Pennsylvania Department of Environmental Resources, Bureau of Radiation Protection, by deposit in the United States mail, addressed as follows:

Mr. Daryl LeHew, Chairman
Board of Supervisors
Londonderry Township
R. D. #1, Geyers Church Road
Middletown, PA 17057

Mr. Russell L. Sheaffer, Chairman
of Board of County Commissioners
of Dauphin County
Dauphin County Courthouse
Harrisburg, PA 17120

Director, Bureau of Radiation Protection
PA. Department of Environmental Resources
Fifth Floor, Fulton Building
P.O. Box 2063
Harrisburg, PA 17120
Att: Mr. Richard R. Janati

GPU NUCLEAR CORPORATION

BY: J. Broughton
Vice President and Director, TMI-1

DATE: May 28, 1993

I. TECHNICAL SPECIFICATION CHANGE REQUEST (TSCR) NO. 206, Supplement 1

GPUN requests that the following changed replacement page be inserted into the existing Technical Specification:

Revised page: 4-47

This page is attached to this change request.

II. REASON FOR CHANGE

During the review of TSCR 206, the NRC staff requested that the TMI-1 station battery load test (TS 4.6.2.d) be performed annually once a station battery had reached 85% of the expected service life. Since TMI-1 plant procedures already have provisions for station battery replacement, this supplement proposes a replacement criteria for the TMI-1 Technical Specifications in lieu of an annual performance test as required by the revised B&W Standard Technical Specifications (NUREG-1430, Rev 0, 9/28/92) Section 3.8.4.8. This supplement is a revision to Change No. 8, Item 2 (page 42) of TSCR 206 (C311-92-2006). The balance of TSCR 206 remains as previously proposed.

III. SAFETY EVALUATION JUSTIFYING CHANGE

The station batteries provide a source of emergency dc power for various controls, EDG auxiliaries, vital instrumentation, and dc-powered motors under station blackout conditions. The TMI-1 Individual Plant Examination (IPE) predicts that the frequency of station blackout occurrence at TMI-1 is 8×10^{-5} . There are two redundant and identical batteries, each consisting of 116 cells. The 1A battery was replaced in 1986 and the 1B battery was replaced in 1987. The typical lifetime of the batteries is between 15 and 20 years.

The purpose of the refueling outage surveillance (4.6.2.d) is to verify that battery capacity is sufficient to meet the calculated load requirements. The test consists of a constant current discharge at a nominal 475 amps for 2 hours (the rated capacity of the battery) to verify battery capacity. The last test, conducted in October 1991, showed the capacities of the 1A and 1B batteries to be 108.3% and 105.8%, respectively. Monthly surveillance testing of the batteries includes measuring specific gravity, cell temperature, electrolyte levels, and individual cell voltages. In addition, the inter-cell and inter-tier electrical connection resistance is measured each refueling interval to verify that it is within 20% of the baseline resistance. Based on this surveillance program, a precipitous failure of the battery is regarded as unlikely.

TMI-1 uses a 2-hour performance test every refueling outage in lieu of the simulated load duty cycle (service) test recommended by IEEE 450-1980. This exception to IEEE 450-1980 is due to the unique nature of the TMI-1 load duty cycle. The duty cycle has only 2 very short periods of time (about 1 minute) when current demand is above 475 amps and these are early in the 120-minute cycle (less than 15 minutes after the station blackout occurs). This current design was found acceptable

because these loads occur early in the duty cycle when the battery is essentially still fully charged, and do not result in battery voltages approaching minimum voltage. Discharging the battery at a constant current of 475 amps actually discharges more amp-hours than a service test. The battery vendor endorsed this approach by concluding that, if the battery is shown to be capable of meeting capacity requirements at its 2-hour constant current discharge rate, it will also be capable of meeting its load duty cycle discharge rate.

The proposed change will extend the interval between successive tests from 18 months to once every 24 months. Load testing ages the battery. By extending the load test cycle from 18 months to 24 months, the total number of discharges the battery will be subjected to over its life span will be reduced, thereby prolonging the total life expectancy of the battery. GPU Nuclear has revised the load test procedure to address the capacity of each battery section. This provides better indication that each battery section will satisfy its intended safety function. Margin applied to design loads will assure adequate battery capacity throughout the 24-month operating cycle.

IEEE 450 specifies that performance discharge testing be performed annually once a battery shows signs of degradation. The Revised Standard TS defines degradation as having reached 85% of the battery's expected life. Current TMI-1 procedures require replacement at 90% of capacity for the 1A battery and 83% capacity for the 1B battery to meet the design loads. To compensate for extending the surveillance interval from 18 to 24 months, TMI-1 proposes new Technical Specification requirements. First, verify the battery capacity exceeds that required to meet the design loads. The intent of this requirement is to ensure operability of the battery throughout the operating cycle. Second, replace the battery during the subsequent refueling outage if the battery capacity drops below 85% (earlier if required to meet design loads).

GPU Nuclear believes that taking the battery out of service during plant operation to perform an annual capacity test in accordance with IEEE 450, 1980 is not prudent. Removal of the battery from service would disable the ability of one train of ECCS and the associated Emergency Diesel Generator in the event of a Loss of Offsite Power. The breakers on the Safety Related Buses depend on the DC system for control power. Use of the DC system tie would make both trains susceptible to single failure.

Determining the battery capacity on a refueling interval and trending the capacity provides assurance that the battery has the capacity to meet design loads during the operating cycle. Scheduling replacement while the battery capacity remains at least 85% provides assurance that unexpected end-of-life failures are not likely to occur.

The proposed refueling interval change will have no effect on station battery availability since the components have demonstrated adequate reliability. The weekly/monthly monitoring programs provide assurance that the station batteries are capable of providing adequate capacity. The new TS requirements provide additional assurance of adequate battery capacity for the new surveillance interval of 24 months. Therefore, the proposed change has no effect on the safety function of the Station Batteries.

IV. NO SIGNIFICANT HAZARDS CONSIDERATIONS

GPU Nuclear has determined that this Technical Specification Change Request involves no significant hazards consideration as defined by NRC in 10 CFR 50.92.

1. Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability of occurrence or the consequences of an accident previously evaluated. The proposed amendment extends the interval from 18 to once every 24 months for the station battery surveillance, and adds an additional TS limit on minimum battery capacity. The reliability of systems and components relied upon to prevent or mitigate the consequences of accidents previously evaluated is not significantly degraded beyond that which occurs during the currently defined refueling outage interval. Assurance of system and equipment availability is maintained. This change does not involve any change to a system or equipment configuration. Therefore, this change does not involve a significant increase in the probability of occurrence of the consequences of an accident previously evaluated.
2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed amendment extends the interval from 18 to once every 24 months for the surveillance evaluated herein, and adds new TS requirements for verifying battery capacity, and limits on minimum battery capacity. This change does not involve any change to a system or equipment configuration. Therefore, this change is unrelated to the possibility of creating a new or different kind of accident from any previously evaluated.
3. Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety. The proposed amendment extends the interval from 18 to once every 24 months for the surveillance evaluated herein, and adds new TS requirements for verifying battery capacity, and limits on minimum battery capacity. The reliability of systems and components is not significantly degraded beyond that which occurs during the currently defined refueling outage interval. Assurance of system and equipment availability is maintained. Therefore, it is concluded that operation of the facility in accordance with the proposed amendment does not involve a significant reduction in a margin of safety. The proposed extension of the refueling outage interval surveillances to once every 24 months does not significantly degrade the reliability of systems and components beyond that which occurs during the currently defined refueling outage interval. Reliable performance of the systems and equipment effected by this change has been demonstrated. Implementation of the proposed amendment will maintain the required level of assurance of system and equipment availability. Thus, operation of the facility in accordance with the proposed amendment involves no significant considerations.

V. IMPLEMENTATION

It is requested that the amendment authorizing this change become effective upon issuance.