METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

AND

PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION, UNIT 1

Operating License No. DPR-50
Docket No. 50-289
Technical Specification Change Request No. 224

This Technical Specification Change Request is submitted in support of Licensee's request to change Appendix A to Operating License No. DPR-50 for Three Mile Island Nuclear Station, Unit 1. As part of this request, proposed replacement pages for Appendix A are also included.

GPU NUCLEAR CORPORATION

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

Sworn and Subscribed to before me
this 12th day of April, 1993.

Melody Kim Kulp
Notary Public

Notarial Seal
Melody Kim Kulp, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires Aug. 21, 1993

Member, Pennsylvania Association of Notaries

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

Mr. Russell L. Sheaffer, Chairman
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
Third and Locust Streets
P. O. Box 2063
Harrisburg, PA 17120
Attn: Mr. Richard R. Janati

GPU NUCLEAR CORPORATION

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

DATE: April 12, 1993

I. TECHNICAL SPECIFICATION CHANGE REQUEST (TSCR) NO. 224

GPU Nuclear requests that the following changed replacement pages be inserted into existing Technical Specifications:

Replace the existing pages 3-62c, 3-104, 4-55d, and 4-92 with the attached revised pages 3-62c, 3-104, 4-55d and 4-92.

II. REASON FOR CHANGE

The exhaust flow of the Auxiliary and Fuel Handling Building (FHB) ventilation system is currently specified as 118,810 CFM +/- 10% (which results in a range of 106,929 CFM to 130,691 CFM). This change will reduce the Technical Specification (TS) low limit to 100,580 CFM. As a result of changes in configuration and components over a period of time, the system has been operating with a reduced margin to the lower limit. The change will permit greater flexibility in the operation of the system without adversely impacting the functional or safety features of the system.

FR-151 is used to indicate and record the total exhaust flow of the Auxiliary and FHB ventilation system. Due to the duct configuration at the location of FR-151, the air turbulence and velocity profile change as the total system air flow changes. Due to these factors, the indication of FR-151 is not reliable and may have significant error. This change would delete any reference to FR-151 from the TS Table 3.21-2 and Table 4.21-2. In lieu of FR-151, the sum of FR-149 and FR-150, which are more accurate and reliable, will be used to monitor the total system exhaust flow of the Auxiliary and FHB ventilation system.

In addition, several editorial changes and corrections to improve the clarity and consistency of the TS pages have been included.

III. SAFETY EVALUATION JUSTIFYING CHANGE

The Auxiliary and FHB ventilation system is designed to maintain a minimum temperature of 60°F, and the supply and exhaust duct systems are arranged to direct the air flow to areas of progressively greater potential radioactivity. The air flow exhausts through a roughing, High Efficiency Particulate Absolute (HEPA), and charcoal adsorber filter system. The system is also designed to maintain a negative pressure in the building with respect to atmospheric to preclude the unmonitored release of radioactive material to the environment. During fuel handling operations the Fuel Handling Building Engineered Safety Feature Ventilation System (FHBESFVS) is also placed in operation. The FHBESFVS is designed to mitigate, monitor and record the radiation release resulting from a postulated TMI-1 fuel handling accident.

An engineering analysis has been performed to evaluate the effect of the proposed TS low limit of 100,580 CFM on the design basis of the Auxiliary and FHB ventilation system. In addition, the analysis considered any impact on the accuracy of the radiation monitors associated with the ventilation system. A summary of that analysis is presented below.

The Auxiliary and FHB ventilation system is operated continuously to maintain a negative pressure inside the two buildings with respect to atmospheric pressure. The FHB Unit 2 operating floor has its own ventilation system which is operated in conjunction with the Auxiliary and FHB ventilation system to maintain a combined negative pressure in both operating floors. A modification is planned to combine the two operating floors with only Unit 1 FHB ventilation system operating and maintaining negative pressure. When the modification is completed the resulting reduced exhaust flow of 27,320 CFM from FHB and actual supply air of 22,330 CFM to the FHB, will allow an infiltration of 4990 CFM to both operating floors. This infiltration air of 4990 CFM is adequate to maintain a negative pressure in both operating floors as demonstrated by recent testing with only the Unit 1 FHB ventilation system operating.

During normal operations, the only source of heat in the FHB is the heated water in the fuel pool. Operation of the Auxiliary and FHB ventilation system at the proposed TS low limit of 100,580 CFM would result in a lower evaporation rate because the air movement across the fuel pool is reduced. The water in the fuel pool is cooled by a redundant cooling pump and heat exchange system and is not dependent on evaporation. Therefore, the proposed TS low limit does not adversely affect the cooling process of the spent fuel pool.

The engineering analysis indicates that at the proposed TS low limit, the resulting exhaust from the Auxiliary Building would be 54,110 CFM. In order to maintain negative pressure, the obtainable supply air should be reduced below the exhaust flow. The reduction is performed automatically by the Static Pressure Controller (SPC-11) which controls the supply damper AH-D-3 to maintain the Auxiliary Building under a negative pressure at all times. Recent test results, extrapolated to the proposed low TS limit, demonstrate the ability to maintain negative pressure.

Because of the reduced exhaust flow, the temperature in various areas of the Auxiliary Building is expected to rise by no more than 3°F. A loss of ventilation test was performed in 1987 for the Nuclear Service Closed Cooling Water (NSCCW) Pump room. With three pumps running during the test, the maximum temperature obtained after 24 hours without ventilation was 99°F. Since the balance of the Auxiliary Building does not have a similar concentration of equipment, the temperature should not rise above 99°F. A 3°F increase in that value will maintain the building temperature at a value below the 104°F maximum indicated in the Final Safety Analysis Report (FSAR). The

increase in temperature will not affect nuclear safety related areas which are provided with independent redundant recirculating cooling units which maintain the temperature within EQ limits. During winter, since the areas are heated by separate unit heaters on a zone basis, the indoor design temperature will remain the same (60°F).

The efficiency of the exhaust filtration units will not be adversely affected by this change. The charcoal filters utilize the principles of adsorption. In the adsorption process the longer the residence time, the more adsorption of iodine occurs. Therefore, reducing the exhaust flow rate will not decrease filtration efficiency.

The function of Radiation Monitors RM-A4 and RM-A6 is to isolate the FHB and the Auxiliary building, respectively in the event of a high alarm on either radiation monitor. As part of this process an alarm is annunciated in the Control Room and the supply fans are automatically shut down. These monitors, which are located before the HEPA and charcoal filters, are installed to provide representative effluent samples of each waste stream. They are provided with isokinetic nozzles. The engineering analysis indicates that, at the proposed lower TS flow, the conditions will be such that insignificant error in sampling will occur. Therefore, the function of these radiation monitors will not be adversely affected by the proposed change. RM-A8, which is located after the filters, will not be adversely affected for the same reasons.

Prior to the movement of fuel in the FHB, the FHB ESF filtration unit is started and run in parallel with the Auxiliary and FHB Ventilation system. In the event of a fuel handling accident, RM-G9 which is located on the fuel handling bridge, and RM-A4 will automatically isolate the FHB operating floor, annunciate an alarm in the Control Room and shut down the supply fan. The reduced exhaust flow will not affect the safety operation of the ESF filtration unit during a fuel handling accident in the FHB.

In a separate, but related change, references to FR-151 are to be deleted from two TS tables. Despite several attempts to improve its accuracy, air flow measurements taken during recalibration and relocation show sustained but inconsistent errors. The location of the probe for FR-151 is at the wye duct section where the two discharge air flows from fans AH-E-14A (or C) and AH-E-14B (or D) meet. Relocating FR-151 was considered but rejected as not cost effective. The change involves removing the cited references to FR-151 as an instrument used to measure flow. FR-151 will not be physically disabled nor removed from the duct. Therefore, the proposed change does not impact the plant design or configuration.

As indicated in TS Table 3.21-2, a minimum of one operable channel for the Auxiliary and FHB ventilation exhaust system (either FR-151 or FR-149 and FR-150) is required to be available at all times. With the proposed change, FR-149 and FR-150 will be the primary devices used to measure the flow rate of the Auxiliary and FHB exhaust ventilation system. In the event either FR-149 or FR-150 is out of service, FR-151 may be used to estimate the total exhaust flow by comparing the FR-151 strip chart before and after the failure. If after the failure, the FR-151 trace is not flat and steady and indicates that there is significant change, then other means of estimating the total exhaust flow will be utilized based on a Technical Specification action statement. With the availability of other methods to estimate the flow rate, the proposed change will not reduce the margin of safety as defined in the SAR and in the basis of the TS. In addition, the use of FR-149 and FR-150 without a TS redundant channel is consistent with other TMI-1 effluent monitors and previous Standard Technical Specifications.

IV. NO SIGNIFICANT HAZARDS CONSIDERATIONS

GPU Nuclear has determined that this TSCR poses no significant hazards as defined by the NRC in 10 CFR 50.92.

1. The proposed change to reduce the TS exhaust flow low limit will not involve an increase in the probability of occurrence or the consequences of an accident previously evaluated. The reduction of flow rate will maintain the original design basis and the functioning of safety equipment is unaffected. Similarly, deleting the reference to FR-151 will not impact plant design such that the safety functions of any system or component would be challenged.

2. The proposed change will not create the possibility of a new or different kind of accident than any previously evaluated since there is no physical change to plant configuration and it does not adversely affect the performance of any equipment.

3. The proposed change will not reduce the margin of safety as defined in the basis of any TS in that the reduced exhaust flow is not associated with any margin of safety indicated in the bases of any TS. Similarly, the deleted reference to FR-151 will not reduce the margin of safety due to the availability of other methods to estimate total exhaust flow if either FR-149 or FR-150 were not operable.

V. IMPLEMENTATION

It is requested that the amendment authorizing this TSCR be effective upon issuance.