



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE NO. DPR-50

METROPOLITAN EDISON COMPANY  
JERSEY CENTRAL POWER AND LIGHT COMPANY  
PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

INTRODUCTION

By letter dated December 12, 1975, Metropolitan Edison Company (the licensee) requested changes to the Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) Technical Specifications in regard to: (1) the method for checking radiation monitors and (2) the interval between calibrations for certain radiation monitors. Our evaluation of this request is described below.

BACKGROUND

Instrument Channel Check

The design of the licensee's radiation monitoring system provides the capability for verifying the operability of the sensing device and monitoring channel by use of low activity check sources. However, in certain locations the continuous background radiation level is such that the incremental increase in counts per minute (CPM) due to the insertion of the check source is minimal. The licensee states that, when the background reading exceeds twice the value which would result from the check source alone, the background reading is sufficient to meet the requirements of Technical Specification 1.5.3 (Instrument Channel Check). The definition of Instrument Channel Check as given in the Technical Specifications is: an instrument channel check is a verification of acceptable performance by observation of its behavior and/or state; this verification includes comparison of output and/or state of independent channels measuring the same variable.

The licensee states that the proposed approach satisfies the requirements of an instrument channel check, as defined above, and will verify that the monitor responds properly.

### Calibration Interval

The licensee has stated that three area radiation monitors, RM-G6, RM-G7 and RM-G8 are located in high radiation areas of the reactor building and are inaccessible during power operation. The licensee proposes that the present requirements of quarterly calibration be modified to read as follows: "quarterly or at the next scheduled reactor shutdown following the quarter in which the calibration would normally be due, if a shutdown during the quarter does not occur."

The licensee states that the current requirement is contrary to the "as low as practicable" (ALAP) objective of minimal radiation exposure to plant personnel. The three monitors are located in areas where the radiation levels are in excess of 100 mr/hr during reactor operation.

### EVALUATION

#### Instrument Channel Check

The licensee has stated that when the background reading is twice that of the check source alone, it meets the requirements of an instrument channel check as defined in the Technical Specifications. The licensee has further stated that, until the background reaches this level, the insertion of the check source provides a noticeable increase in the output reading to verify instrument operability.

A comparative verification is made, where possible, for those instruments in locations where the background exceeds the level for which the check source provides a detectable increase. Where comparative readings are not possible, special procedures (e.g., inserting an external source of a higher value) will be used to verify instrument operability.

We have concluded, based on the information provided above, that the proposed change to the licensee's Technical Specifications relating to the instrument channel check meets the requirements of IEEE Std 279, "Criteria for Protection Systems for Nuclear Power Stations," Section 4.9, "Capability for Sensor Checks", and is, therefore, acceptable.

#### Calibration Interval

The licensee has stated that radiation monitors RM-G6, RM-G7 and RM-G8 are located inside the containment in areas where the radiation levels exceed 100 mr/hr during reactor operation. The current Technical Specifications require calibration every quarter. The licensee has requested that the calibration interval be changed to a period that could be as much as 18 months for the detectors identified above to minimize the radiation exposure of operating

personnel. We concur with the licensee that the existing requirement is contrary to the ALAP objective in regard to personnel exposure.

The current licensing practice for requirements for calibration intervals are every 18 months for all instruments. To determine if the instruments employed at TMI-1 were comparable to those in use at other facilities, we requested the licensee to identify the manufacturer of the monitoring system and to identify the location and describe the safety related functions of the three radiation monitors. The licensee stated that the system is supplied by Victoreen, an established manufacturer who has also supplied radiation monitoring systems to other nuclear power plant owners. We therefore, conclude that the instruments installed at this facility are comparable to those employed at other facilities which are subject to our current licensing practice.

Radiation monitors RM-G6, and RM-G7 are located near the reactor vessel head and are required during refueling operations. Radiation monitor RM-G8 is located in the dome area of the containment and is utilized to monitor gross failures such as a Loss of Coolant Accident. The licensee's current operating procedure, 1502-1, "Refueling Procedure - Refueling Operation," requires that the RM-G6 and RM-G7 setpoints be adjusted to a lower value during refueling operations. The licensee has committed to include, in this procedure, a requirement to calibrate RM-G6 and RM-G7 prior to proceeding with refueling operations.

We conclude, based on the information described above, that the change in the calibration interval for RM-G6, RM-G7 and RM-G8 meets our requirements for calibration intervals and is, therefore, acceptable.

On the basis of our evaluation of the information provided, we conclude that the licensee's proposed change, in regard to both the method of checking and the extension of the calibration interval for the above cited instruments, is acceptable.

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: March 3, 1977