



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

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 51 TO FACILITY OPERATING LICENSE NO. DPR-50

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

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

Description of Proposed Action

By letters dated April 14, 1977, and July 8, 1977, as revised February 24, 1978, Metropolitan Edison Company (Met Ed) requested that the Environmental Technical Specifications (ETS) for Three Mile Island Nuclear Station, Unit No. 1 (TMI-1) be revised to delete certain nonradiological environmental technical specifications as the programs have reached their termination points. The programs proposed for deletion are Specifications 4.1.1, Aquatic Biological Surveillance; 4.1.2, Terrestrial Surveillance, including 4.1.2.1, Bird Impaction on Cooling Towers, and 4.1.2.2, Aquatic Chemical Surveillance; 4.2.2, Ambient Water Quality; and 4.3.1, Thermal Plume Mapping. Our evaluation is based on information in the annual reports from 1974 through 1977.

Evaluation

4.1.1.A Impingement

During 1974 and 1975 a total of 44 fish impingement surveys were made. A total of 1698 (4.3 kg) fish of 25 species were impinged. The average hourly impingement rate was 1.6 fish/hr (4.1 gm/hr). A very small percentage of these fishes were game fish. Most of them were forage species and trash species.

The results of trapnet and seine sampling during 1974 and 1975 (a total of 18,741 fish were caught in the program) indicate a fairly extensive local fish population, although the exact extent of the population was not determined. We judge that the impingement rate is small in comparison to the apparent size of the population, and therefore the impact of fish impingement is insignificant. Based on these findings, we conclude that the impingement numbers are low on a relative basis and no further impingement sampling need be done for this Unit.

4.1.1.B Entrainment of Fish Eggs and Fish Larvae

During the spawning period (April - October), egg and larval fish studies were done twice per month. Most of the eggs that were taken were collected

in May and June. During the two-year period, a total of 390 eggs, 234 larval fishes, and 13 juveniles were taken in a total of 168 sampling periods. The amount of water that was filtered during each sampling period was three cubic meters. These entrainment studies indicate that for most of the spawning period low densities of ichthyoplankton are found in the area and suggest that the impact is acceptable. Because further sampling in this area will not increase the confidence of the impact assessment and the numbers entrained are low in comparison to expected populations, the entrainment studies are no longer necessary.

4.1.1.C Entrainment of Plankton

The specification requires that semi-monthly plankton sampling be made at four hour intervals over a 24-hour period. The samples were to be counted and the extent of mortality determined. Species were to be identified to the lowest possible taxon.

The samples indicate that the differences in abundance were not significant ($P=.05$) most of the time. As the intake and discharge samples were similar, we judge that the plant is having a negligible impact on these populations. We have concluded that this program may be terminated since the objective has been adequately met.

4.1.1.D Fish

Data were collected during 1975 and 1977. The specification requirements were met during all three of these years. The data do not indicate that any significant changes in population are occurring; therefore, we conclude that this specification requirement may be terminated.

4.1.1.E Macroinvertebrates

Data were collected during 1975 and 1976. The studies done during these years met the specification requirements. Termination of the program is acceptable since the sampling requirement has been met, and no significant impacts were expected on these populations according to the Final Environmental Statement (FES).

4.1.2 (4.1.2.1 & 4.1.2.2) Bird Impaction on Cooling Towers and Effects of Cooling Tower Drift on Crops and Natural Vegetation

The data presented fully satisfy the ETS objectives, specifications, and bases. This conclusion agrees with the conclusions presented by the NRC staff in the FES for TMI-2 (December 1976). In the FES (Section 6.5), the NRC staff reviewed TMI-1 operational data and recommended termination of TMI-1 terrestrial monitoring programs and implementation of TMI-2 terrestrial monitoring programs as they would detect effects from TMI-1 operation. Thus, we find the deletion of this program at TMI-1 acceptable.

4.2.1 Aquatic Chemical Surveillance

Met Ed collected data in this area during 1974 and 1975. The monitoring was required to be done for a period of two years. The monitoring program that was carried out met the requirements of the specifications. Our review of the results of the monitoring indicated that no significant change to water quality of the Susquehanna River has occurred that can be attributed to plant operation. In our judgment the objectives of the specifications have been met, and therefore we find deletion of this program acceptable.

4.2.2 Ambient Water Quality

Met Ed collected data in this area from 1974 through 1976, which appears in their annual reports. The monitoring program performed by Met Ed met the objectives of the specifications both in content and in duration. The data indicate that no significant change in water quality has occurred in the river; thus, we find the deletion of this program acceptable.

4.3.1 Thermal Plume Mapping

The objective of this specification is to provide data for defining the discharge plume and to check the accuracy of the analytical plume model. Thermal plume data have been collected under various river flow and ambient temperature conditions in compliance with the monitoring requirements. The ETS contained a requirement that Met Ed locate the 5°F ΔT isotherm during the first planned winter cooldown in which the effluent ΔT is greater than 10°F. The only planned winter cooldown in over four years resulted in a ΔT of less than 10°F (8.3°F). Met Ed stated that the "the thermal plume during this cooldown was confined to the area of the discharge and had a width less than 20 meters from shore and a length less than 25 meters downstream from the discharge." We do not anticipate that the effect of a 2°F ΔT increase would significantly increase the size of the plume.

As predicted in the FES, based on the analytical plume model, the plumes are small or nonexistent in most cases. No unusual thermal effects that would warrant further monitoring were detected.

Based on the above, we conclude that the requirement for monitoring during winter cooldown is no longer necessary and that Met Ed has met the intent of Section 4.3.1. Therefore, we find the deletion of Section 4.3.1 acceptable.

Conclusion and Basis for Negative Declaration

On the basis of the foregoing analysis of the results of the test program, it is concluded that there will be no significant environmental impact attributable to the proposed action. Having made this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate. The test programs deleted by this amendment were required by the technical specification to be continued for a period of two years and based on the above analysis there is no need for continuation. Therefore this amendment merely deletes these test programs that are no longer in effect and which will not have an impact on the environment. The test programs did meet the objectives of the technical specification and the results confirmed the earlier assumptions.

Dated: January 28, 1980