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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

AND

CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1

DOCKET NO. 50-346

Introduction

By letters dated February 17, 1982 (No. 781), and September 25, 1981 (No. 738), Toledo Edison Company submitted applications for amendment to the Appendix A Technical Specifications (TSs) of Facility Operating License No. NPF-3. The licensee's February 17, 1982, application proposed to amend Section 4.6.1.5, Surveillance Requirements, to specify at least two of the primary containment air cooler inlet temperatures be used to determine the primary containment average air temperature. The licensee's request of September 25, 1981, involves Section B3/4.3.3.7 of the TS Bases. The licensee proposed to amend Section B3/4.3.3.7, Chlorine Detection Systems, to rectify an error in the Bases statement which states incorrectly that the control room emergency ventilation system will automatically isolate the control room and initiate its operation in the recirculation mode to provide the required protection.

Proposed Change to Sectior 4.6.1.5

Discussion

To ensure that the average primary containment air temperature does not exceed the initial temperature assumed in the accident analysis for the Loss of Coolant Accident (LOCA), the containment cooling system, in addition to its accident mitigating function, is used to cool and circulate air inside the primary containment building during normal operation. The containment air cooling system consists of three fan-cooler units located inside the primary containment building. Each unit is composed of a finned tube cooling coil using service water and a direct drive fan. The units distribute air through a common plenum and ducting around heat producing or releasing equipment to maintain the primary containment average air temperature at or below 120°F specified in TS 3.6.1.5.

In the event of a LOCA, any two of the three cooling units or one unit in combination with the containment spray system are capable of cooling the containment building atmosphere to reduce the containment pressure. During normal station operation, any two of the cooling units satisfy the operability requirements of TS-3.6.2.2. The action statement of TS 3.6.2.2 also permits reduction of operable containment air coolers to one for a period of 72 hours in a degraded mode of operation. This allows a reasonable time to make a second containment air cooler operable in the event of a malfunction.

Specification 4.6.1.5, the surveillance requirement for the 120°F of Specification 3.6.1.5, requires that the primary containment average air temperature shall be the arithmetical average of the temperatures at the three containment air cooler inlets. The licensee states that during normal station operation only two of the three cooler units are normally operated to maintain containment air at or below 120°F and to meet the operability requirements of Specification 3.6.2.2. Since only two containment air cooler units are normally operating, the cooler inlet temperature element of the inoperative unit measures static air temperature and may not be representative of containment building air temperature. In their February 17, 1982 letter, the licensee proposed that the surveillance requirements of Specification 4.6.1.5 be changed, to improve the accuracy of the determination, to state that the arithmetical average of the cooler inlet air temperatures of the operating units be used as the average air temperature in the primary containment.

Evaluation

All three of the containment air cooler inlets are located on the 585 foot elevation of the primary containment building. The units are situated in one area of the building drawing air from a common location. The temperature sensing elements used to measure the inlet air temperature are located on the inlet surface of each unit. While these temperature sensing elements are exposed to the containment air, we agree with the licensee that the accuracy of the air temperature measurement is improved when there is air flow around the element created by the operating fan in the cooler unit.

Although the licensee stated that two of the three containment air coolers are operating during normal station operation, we find there is a probability that this number of operating air cooler units could be reduced to one unit under the provisions of TS 3.6.2.2 or because only one unit is required to control the temperature. The licensee acknowledged, during oral discussions on August 20, 1982, that it is possible that only one containment air cooler could be operating provided the average containment air temperature does not exceed 120°F. The licensee also acknowledged that if only one containment air cooler is operating that the temperature sensing element for that operating unit should be used rather than two proposed in their letter of February 17, 1982.

We find that the licensee's proposal to change the surveillance requirements of TS 4.6.1.5 to state that the primary containment average air temperature shall be determined by an arithmetic average of the inlet temperature(s) to the operating containment air cooler(s) (1-1, 1-2, and 1-3) is acceptable. We agree that this change improves the accuracy of measuring the containment air temperature by ensuring the air temperature measurement of the operating units is used rather than including the static temperature measurement(s) of the nonoperating unit(s).

Proposed Change to Section B3/4.3.3.7

Evaluation

The Updated Safety Analysis Report (USAR) in Section 9.4.1.3 describes the chlorine detection system function as follows:

"Two chlorine detectors with independent essential power supplies are located in the control room fresh air intake vent and two detectors with independent essential power supplies are located at the chlorine tank car. These detectors indicate the presence of chlorine in concentrations greater than 0.5 parts per million. Signals from the chlorine detector stop the normal operating fans, and cause the normal ventilation system intake, exhaust, and control room isolation dampers to close. The control room emergency ventilation system is started manually by operator action."

The licensee proposes to correct the Bases statement, Section B3/4.3.3.7, so that it will agree with the USAR description. The Bases incorrectly state that the control room emergency ventilation system automatically isolates the control room, whereas the following automatic sequence occurs when a high chlorine concentration (0.5 ppm) is detected at any of the four chlorine detectors:

1. The control room supply and exhaust fans are stopped.
2. The inlet and outlet dampers are closed.
3. The control room isolation damper is closed.

Following the automatic isolation of the control room, the emergency ventilation system can be started manually by leaving the supply and exhaust dampers closed, opening the isolation dampers, and starting the air-conditioning system in the recirculation mode.

We agree that this change should be made to Section B3/4.3.3.7 to correctly describe the control room automatic isolation actuation, and since there is no change in this safety system and the system is consistent with the recommendations of Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operations Against an Accidental Chlorine Release," we find the proposed change to Bases Section B3/4.3.3.7 acceptable.

Environmental Consideration

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 an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, 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: November 30, 1982

The following NRC Region III personnel have contributed to this Safety Evaluation: K. R. Ridgway, T. N. Tambling.