



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT TO SAFETY ANALYSIS REPORT

RHODE ISLAND ATOMIC ENERGY COMMISSION

DOCKET NO. 50-193

1.0 INTRODUCTION

By letter dated December 1, 1993, the Rhode Island Atomic Energy Commission (the licensee) submitted a request for amendment of the Safety Analysis Report (SAR) to allow the use of a through port at the Nuclear Science Center reactor. The SAR revision of 1992 for the conversion to low enriched uranium (LEU) fuel did not consider use of the through port, as no use of the facility was planned at that time. To enable the approval of this proposal without significant reassessment of the SAR, controls on operation of the through port have been proposed to enable the previous analysis for the beam ports to be applied to the through port. Additional administrative controls have been proposed to further ensure the safety of operation of the through port.

2.0 EVALUATION

The licensee has proposed that use of the through port be restricted so that the total cross-sectional area of the openings in the tube do not exceed the equivalent of a 1/2 inch diameter hole. The SAR has previously established that the time taken for the pool to drain through this size opening, if one of the beam ports ruptured, would exceed, with a large safety margin, the time required for the decay heat of the core to diminish to the extent that core damage would not result. As a further safety measure, the licensee has proposed administrative controls that would require a delay of at least 12 hours after shut down before the through port is opened, to ensure the core has could not be damaged on a loss of coolant event.

The NRC staff agrees that the arrangements described in the proposed amendment will provide a safety margin at least as great as that established by the analysis of the beam ports in the previous safety analyses. It is noted that the calculations performed in the previous analysis made very conservative assumptions in the beam port case, and further conservatism is provided at the through port, as it is encased in a concrete shell, while the beam ports are not.

The administrative control which requires at least a 12 hour delay after shut down before opening the through port provides extra assurance that the decay heat of the core will be dissipated before any loss of coolant can occur. This delay also enhances the radiation protection in the area, as it allows decay of activated materials in the sample.

The licensee has advised that the effects of samples loaded in the through port on the neutron flux within the core has been considered by the Reactor Utilization Committee, which has confirmed the safety of the proposed operations.

Based on the above, the NRC staff consider the proposed amendment to be consistent with the provisions of 10 CFR 50.59 and, therefore, acceptable.

3.0 CONCLUSION

The proposed changes will not adversely affect the health and safety of the public. These changes do not constitute an unreviewed safety question, nor do they involve a significant hazard or an environmental impact.

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