



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO MARK I CONTAINMENT LONG-TERM PROGRAM
POOL DYNAMIC LOADS REVIEW
QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2
DOCKET NOS. 50-254/265

1.0 INTRODUCTION

In July 1980, the staff issued a report, NUREG-0661, "Safety Evaluation Report, Mark I Containment Long-Term Program," to address the NRC acceptance criteria for the Mark I containment Long-Term Program, which are intended to establish design basis loads that are appropriate for the anticipated life of each Mark I boiling water reactor (BWR) facility, and to restore the originally intended design safety margins for each Mark I containment system.

Since the issuance of NUREG-0661, the Mark I owners submitted additional reports in which they provided additional justification for the adequacy of: (1) the data base for specifying torus wall pressure during condensation oscillations; (2) the consideration given to asymmetric torus loading during condensation oscillations; and (3) the effect of fluid compressibility in the vent system on pool-swell loads. As a result of the staff's and its consultant's (Brookhaven National Laboratory (BNL)) evaluation of these reports, Supplement 1 to NUREG-0661, dated August 1982, has been issued.

2.0 EVALUATION

Commonwealth Edison Company submitted a Plant Unique Analysis Report (PUAR) on the pool dynamic loads for the Mark I containments for Quad Cities Station, Units 1 and 2. This report provides a description of the specific application of the generic Mark I pool dynamic loads and methods for Quad Cities and the plant unique loads used in assessing the capability of the containment and components to accommodate the pool dynamic loading phenomena. The BNL was contracted to review the PUAR for compliance with the staff's acceptance criteria and to evaluate the acceptability of any proposed alternative load specification.

A summary of the BNL review and status for each of the pool dynamic loads is presented in the attached report titled "Technical Evaluation of the Quad Cities Plant Unique Analysis Report." As indicated in the report, Commonwealth Edison has adopted all but a few of the generic criteria. For those few exceptions alternative criteria were proposed. The BNL evaluation of these criteria is included in the attached report. Based on its review, the staff endorses the BNL evaluation and conclusion.

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3.0 CONCLUSIONS

The staff has completed an assessment of Quad Cities Station, Units 1 and 2 against generic acceptance criteria contained in NUREG-0661 and its supplement, and has also reviewed those few areas where alternative criteria have been proposed. In addition, the staff has completed its review of those areas where additional information was relegated to the plant unique review. In each of these areas the staff has concluded that the pool dynamic loads utilized by the licensee are conservative and, therefore, acceptable.

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Date: February 15, 1986

Attached: Technical Evaluation Report,
dated September 1984, prepared
by BNL.