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LWP-97-012

February 7, 1997

U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Quad Cities Station Units 1 and 2
Secondary Containment Capability
Test Summary Technical Report
NRC Docket Nos. 50-254 and 50-265

Attached, in accordance with Section 6.6.B.4 and Table 6.6-1 of Appendix A to DPR-29 and DPR-30, is a summary of the Secondary Containment Leak Rate Test performed for the Quad Cities Station Units 1 and 2 Reactor Buildings on February 2, 1997. This test was performed in accordance with Section 4.7.N.3. of Quad Cities Units 1 and 2 Technical Specifications.

Very truly yours,

L. W. Pearce
Station Manager
Quad Cities Nuclear Power Station

LWP/RR/kdm

Enclosure: Secondary Containment Test Summary

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Quad Cities Nuclear Power Station

Units 1 and 2

Secondary Containment Leak Rate Test Summary

Introduction

Prior to the Unit Two Refueling Outage at the End of Cycle Fourteen operations, a Secondary Containment Leak Rate Test was performed on the combined volume of the Unit One and Unit Two Secondary Containment Building. The test was performed to demonstrate the ability of the Standby Gas Treatment System (SBGTS) to maintain a quarter of an inch of water vacuum in both Reactor Buildings simultaneously with a filter train flow rate of not more than 4000 cfm. The test was conducted with a local filter train flow rate of 4000 cfm.

Secondary Containment Capability Tests

The test was initiated at 0921 hours on February 2, 1997 with the 'B' SBGTS train in primary by simulating a "HI" radiation signal in the Reactor Building Ventilation Monitors. This action isolated the Reactor Building Ventilation systems, stopping all operating supply and exhaust fans, and starting 'B' SBGTS train. When equilibrium conditions were reached, differential pressure readings were taken.

Test Results

Data on wind speed, wind direction, building inside and outside temperatures, and differential building pressures were obtained for SBGTS flow rate of approximately 4000 cfm on the 'B' filter train. The test data represents the "as-found" condition of the Secondary Containment Building.

A 4 inch hole (leak) in the Secondary Containment was induced during the test. The purpose was to obtain data in order to quantify the performance of the Secondary Containment in a degraded condition. The leak was induced by opening a four inch fire header from outside to the Reactor Building.

Corrections for the reactor building to atmosphere differential temperatures were not performed. The temperature correction data is shown on the attached Summary of Test Data sheet for reference only.

SUMMARY OF TEST DATA

February 2, 1997

Quad Cities 1 & 2 Reactor Building Leak Rate

| <u>Flow (cfm)</u> | <u>Differential Wall Pressure (inches of water)</u> | | | | |
|-------------------|---|--------------|-------------|-------------|----------------|
| | <u>North</u> | <u>South</u> | <u>East</u> | <u>West</u> | <u>Average</u> |
| 4000 | -0.38 | -0.38 | -0.40 | -0.38 | -0.385 |

Differential Reactor Building to Atmosphere Temperature = 43.4 F

Temperature Correction (inches of water) = -0.038

Temperature Corrected Average

Differential Pressure (inches of water) = -0.423

| <u>Flow (cfm)</u> | <u>Differential Wall Pressure (inches of water)</u> | | | | |
|-------------------|---|--------------|-------------|-------------|----------------|
| | <u>North</u> | <u>South</u> | <u>East</u> | <u>West</u> | <u>Average</u> |
| 4000 | -0.36 | -0.34 | -0.36 | -0.33 | -0.348 |

Temperature Corrected Average

Differential Pressure (inches of water) = -0.386

Summary of Wind and Temperature Conditions

Temperature (deg. F): Indoor 75.6° F
 Outdoor 32.2° F

Wind Velocity (MPH): 13.0 - 4.7 (Beginning to End of Test)

Wind Direction: NW (343 deg.)

Elevation Above Grade Level (feet): 196

The results of the test indicate that the SBGTS is capable of maintaining a quarter of an inch of water vacuum under calm wind conditions with a filter train flow rate of no more than 4000 cfm. Average reactor building differential pressure for the train results in -0.385 inches of water (without correction for building to atmosphere differential temperature), indicating adequate performance of the Secondary Containment and Standby Gas Treatment System.