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May 24, 1985

Docket No. 50-352

Dr. Thomas E. Murley
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

SUBJECT: Special Report - Reactor Core Isolation Cooling (RCIC) System Actuations and Injections - Limerick Generating Station - Unit 1

REFERENCE: Technical Specifications 3.7.3.b and 6.9.2

Dear Dr. Murley:

This Special Report is being submitted pursuant to the requirements of Limerick Generating Station Technical Specification 3.7.3.b which states that, "In the event the RCIC system is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.", and Technical Specification 6.9.2 which states that, "Special Reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report."

This report concerns the occurrence of seven Reactor Core Isolation Cooling (RCIC) system actuations and injections into the reactor coolant system during startup testing of Unit No. 1. None of the seven RCIC vessel injections were unanticipated nor the result of safety system action from abnormal plant conditions, but were performed under the purview of the startup test program and directed by Startup Test Procedures. Since these injections were designed into the startup test program, there were no adverse effects on the

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reactor vessel or the RCIC system as a result of the injections. Two injections were automatic quick starts at less than 3% rated power with the dome pressure at approximately 150 psig. The five remaining injections occurred at less than 4% rated power with the dome pressure at 920 psig. Four were automatic quick starts and one was a manual slow start.

Below is a description of each of the RCIC system actuation and injection events.

On February 27, 1985 Startup Test Procedure (STP) 14.4-1, "RCIC Controller Optimization During RPV Injection at Rated Pressure", was performed. The test involved two intentional RCIC injections into the reactor vessel. The first injection consisted of a RCIC slow start in manual mode, with flow step changes up to 600 gpm to optimize controller settings. The second injection consisted of a RCIC quick start in automatic mode to a flowrate of 600 gpm with the same controller settings from the first injection to check control system stability.

Reactor parameters for both injections were as follows: Power level less than 4% of rated, dome pressure 920 psig, and moderator temperature 520 degrees F. RCIC pump suction for both injections was lined up to the Condensate Storage Tank (CST) and pump discharge pressure was approximately 990 psig to achieve 600 gpm. These two injections represent the first and second RCIC actuation cycles to date.

On March 1, 1985 Startup Test Procedure (STP) 14.5-1, "Stability Check CST to RPV at 150 PSIG", was performed. The test involved one intentional RCIC injection into the reactor vessel. This injection consisted of a RCIC quick start in automatic mode to a flowrate of 600 gpm. Flow step changes were performed such that RCIC flowrate varied between 535 and 610 gpm.

Reactor parameters for this injection were as follows: Power level less than 3% of rated, reactor vessel dome pressure 160 psig, and moderator temperature 360 degrees F. RCIC pump suction was lined up to the Condensate Storage Tank and pump discharge pressure was approximately 220 psig to achieve 600 gpm. This injection represents the third RCIC actuation cycle to date.

On April 3, 1985 Startup Test Procedure (STP) 14.5-2, "Stability Check CST to RPV at 150 PSIG", was performed. The test involved one intentional RCIC injection into the reactor vessel. This injection consisted of a RCIC quick start in automatic mode, to a flowrate of 600 gpm to prove the RCIC system operable following maintenance.

Reactor parameters for this injection were as follows: Power level less than 3% of rated, dome pressure 150 psig, and moderator temperature 355 degrees F. RCIC pump suction was lined up to the Condensate Storage Tank and pump discharge pressure was approximately 200 psig to achieve 600 gpm. This injection represents the fourth RCIC actuation cycle to date.

On April 6, 1985 Startup Test Procedure (STP) 14.6-1, "RCIC Cold Quickstart at Rated Pressure-CST to RPV", was performed. The test involved one intentional RCIC injection into the reactor vessel. This injection consisted of a RCIC quick start in automatic mode to a flowrate of 600 gpm.

Reactor parameters for this injection were as follows: Power level less than 4% of rated, dome pressure approximately 920 psig, and moderator temperature 520 degrees F. RCIC pump suction was lined up to the Condensate Storage Tank and pump discharge pressure was approximately 990 psig to achieve 600 gpm. This injection represents the fifth RCIC actuation cycle to date.

On April 9, 1985 Startup Test Procedure (STP) 14.6-2, "RCIC Cold Quickstart at Rated Pressure-CST to RPV", was performed. The test involved one intentional RCIC injection into the reactor vessel. This injection consisted of a RCIC quick start in automatic mode to a flowrate of 600 gpm.

Reactor parameters for this injection were as follows: Power level less than 4% of rated, dome pressure approximately 920 psig, and moderator temperature 520 degrees F. RCIC pump suction was lined up to the Condensate Storage Tank and pump discharge pressure was approximately 990 psig to achieve 600 gpm. This injection represents the sixth RCIC actuation cycle to date.

On April 12, 1985 Startup Test Procedure (STP) 14.6-3, "RCIC Cold Quickstart at Rated Pressure-CST to RPV", was performed. The test involved one intentional RCIC injection into the reactor vessel. This injection consisted of a RCIC quick start in automatic mode to a flowrate of 600 gpm.

Reactor parameters for this injection were as follows: Power level less than 4% of rated, dome pressure approximately 920 psig, and moderator temperature 520 degrees F. RCIC pump suction was lined up to the Condensate Storage Tank and pump discharge pressure was approximately 990 psig to achieve 600 gpm. This injection represents the seventh RCIC actuation cycle to date. There were no adverse effects on the reactor vessel or the RCIC system as a result of this injection.

Since these activities occurred as a result of startup testing, no corrective action is to be taken.

Should you require additional information, please do not hesitate to contact us.

Very truly yours,

W. T. Ullrich
Superintendent
Nuclear Generation Division

cc: J. T. Wiggins, Senior Site Inspector
See Attached Service List

c: Judge Helen F. Hoyt
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January 16, 1985