



Commonwealth Edison  
1400 Opus Place  
Downers Grove, Illinois 60515

January 21, 1992

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Attn: Document Control Desk

Subject: Quad Cities Nuclear Power Station Units 1 and 2  
Application for Amendment to Facility Operating Licenses  
DPR-29 and DPR-30, Appendix A, Technical Specifications  
NRC Docket Nos. 50-254 and 50-265

References: a) L.N. Olshan letter to T.J. Kovach dated March 8, 1991  
b) R.L. Bax (CECo) letter to USNRC Document Control Desk  
dated May 28, 1991; Licensee Event Report (LER) 91-009

Dear Dr. Murley:

Pursuant to 10 CFR 50.90, Commonwealth Edison Company (CECo) proposes to amend Appendix A, Technical Specifications of Facility Operating Licenses DPR-29 and DPR-30. The proposed amendment changes a specific action provision for the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems to a limited action provision. The current action provisions do not allow continued plant operation upon successful completion of a low pressure flow performance test followed by the subsequent failure of a normal operating pressure flow performance test. The flow performance tests are required to be performed during start-up following a refuel outage or an outage in which work was performed which directly affected HPCI or RCIC system operability. Operational experience at Quad Cities Station has demonstrated that these provisions result in unnecessary cycling of the reactor while operating within the heat-up range, and reduces the ability to determine adequate corrective actions. The revised action provision would limit the applicability of the action provision to a failure of the low pressure flow performance test. This revised action provision implements Standard Technical Specification (STS) provisions which allow a 14 day allowable outage time, provided that the remaining high pressure injection and low pressure ECCS systems are operable.

The proposed amendment request is provided as follows:

1. Attachment 1 provides the Safety Evaluation for the proposed amendment;
2. Attachment 2 provides a summary of the changes;
3. Attachment 3 provides the proposed Technical Specification pages which reflect the proposed changes;

270110

9201280219 920121  
PDR ADDCK 05000254  
P PDR

ADD 1/1

- 4. Attachment 4 describes CECO's evaluation pursuant to 10 CFR 50.92(c); and,
- 5. Attachment 5 provides the Environmental Assessment for the proposed amendment.

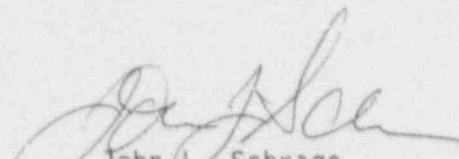
The proposed amendment will reduce the potential for unnecessary thermal cycling of the reactor, thereby reducing the likelihood of plant transients and challenges to safety systems during start-up following a refuel outage. Therefore, CECO respectfully requests the NRC's review and approval of this proposed amendment in a time frame which will allow the station to avoid unnecessary unit cycling following the current refuel outage. This proposed amendment has been reviewed and approved by CECO On-site and Off-site review in accordance with CECO procedures.

To the best of my knowledge and belief the statements contained herein are true and correct. In some respects, these statements are not based on my personal knowledge but upon information received from other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

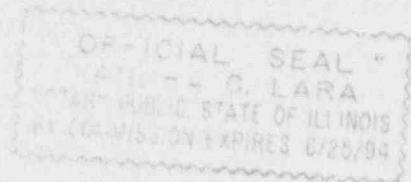
CECO is notifying the State of Illinois of this application for amendment by transmitting a copy of the proposed amendment to the designated state official.

If there are any questions or comments, please direct them to John L. Schrage at 708 515-7283.

Respectfully,

  
 John L. Schrage  
 Nuclear Licensing Administrator

Signed \_\_\_\_\_  
 of \_\_\_\_\_ County of \_\_\_\_\_  
 Notary Public \_\_\_\_\_



- Attachment 1: Safety Evaluation of the Proposed Amendment
- Attachment 2: Summary of the Proposed Changes
- Attachment 3: Proposed Technical Specification Pages
- Attachment 4: Evaluation Pursuant to 10 CFR 50.92(c)
- Attachment 5: Environmental Assessment for the Proposed Amendment

cc: A. Bert Davis, Regional Administrator-RIII  
 L.N. Olshan, Project Manager-NRR  
 T.E. Taylor, Senior Resident Inspector-Quad Cities  
 Office of Nuclear Safety-IDNS

## ATTACHMENT 1

### SAFETY EVALUATION OF THE PROPOSED AMENDMENT

#### INTRODUCTION

Commonwealth Edison Company (CECo) proposes to amend the Technical Specifications for Quad Cities Nuclear Power Station (QCNPS), DPR-29 (Unit 1) and DPR-30 (Unit 2). The proposed amendment would change the plant specific action provisions of Technical Specification (TS) 3.5.C.2 for the High Pressure Coolant Injection (HPCI) system and 3.5.E.2 for the Reactor Core Isolation Cooling (RCIC) system to a limited action requirement.

The current provisions of 3.5.C.2 and 3.5.E.2 do not allow continued plant operation upon successful completion of the low pressure flow performance test, followed by a subsequent failure of the flow performance test at normal operating pressure. Recent operational experience at Quad Cities Station (start-up operation following the Unit 1 Cycle 11 Refuel Outage), has demonstrated that these provisions result in excessive cycling of the reactor while operating within the heat-up range.

The proposed amendment would limit the applicability of the action statement to the failure of a low pressure flow performance test for the HPCI and RCIC systems. The action provision for the failure of a flow performance test at normal operating pressure would be described by current specifications 3.5.C.3 and 3.5.E.3 for the HPCI and RCIC systems. These action statements implement the Standard Technical Specification (STS) provisions which allow a 14 day allowable outage time, provided that the remaining high pressure injection and low pressure ECCS systems are operable.

#### BASES FOR CURRENT REQUIREMENT

The current operability requirements as specified by TS 3.5.C.1 and 3.5.E.1 require that the HPCI and RCIC systems be operable whenever the reactor pressure is greater than 150 psig and fuel is in the reactor vessel. The current provisions satisfy the core cooling requirements for both small break loss-of-coolant accidents (HPCI) and non-break reactor isolation (RCIC) transient events with the reactor pressurized. Below 150 psig reactor pressure, the low pressure ECCS subsystems can provide sufficient flow to the reactor pressure vessel.

On March 8, 1991, the Office of Nuclear Reactor Regulation of the NRC approved Amendment 130 and 124 to Appendix A (Technical Specifications) of Facility Operating Licenses DPR-29 and DPR-30 (Reference (a)). The main purpose of this amendment was to remove the requirement to demonstrate operability of other Emergency Core Cooling Systems (ECCs) when the High Pressure Coolant Injection (HPCI) or Reactor Core Isolation Cooling Systems (RCIC) are inoperable. As part of that amendment, new action statements and associated surveillance requirements were added. These describe actions to be taken upon the failure of flow performance testing requirements during a start-up from a refuel outage or an outage in which work was performed that directly affected HPCI or RCIC system operability and these tests. The action statements (3.5.C.2 and 3.5.E.2) require that if either low pressure (reactor vessel pressure of 250 to 325 psig) or high pressure (reactor vessel pressure of 920 to 1005 psig) flow performance testing requirements cannot be met for either the HPCI or RCIC system, then that system shall be declared inoperable; an orderly shutdown shall be initiated; and, reactor pressure shall be reduced to less than 150 psig within 24 hours.

## BASES FOR CURRENT REQUIREMENT (cont'd)

The action requirements (TS 3.5.C.2 and 3.5.E.2) and associated flow performance tests (TS 4.5.C.3 and 4.5.E.3), which were previously added by License Amendments 130 and 124, adopted a modified version of STS and BWR industry action provisions. These provisions require the performance of two (2) flow rate tests for HPCI (RCIC), i.e. one test every 92 days and another under certain start-up conditions. The previous method of testing allowed an acceptance criteria if one point on the pump curve was achieved against a system head pressure corresponding to a reactor vessel pressure of 150 psig to 1150 psig.

## DESCRIPTION OF THE NEED TO CHANGE THE CURRENT REQUIREMENTS

Flow performance tests for the HPCI and RCIC systems are currently performed at two levels of reactor pressure. The current low pressure test is required to be performed within twelve (12) hours of achieving the required reactor pressure and prior to exceeding 325 psig. The test at normal operating pressure is required to be performed within twelve (12) hours of achieving reactor vessel pressures in the normal operating range of 920 to 1005 psig. Given the successful completion of a low pressure flow performance test for the HPCI and RCIC systems (TS 4.5.C.3.a and 4.5.E.3.a) during start-up, the normal operating pressure flow performance test (TS 4.5.C.3.b and 4.5.E.3.b) cannot be reasonably anticipated to fail before the unit has achieved normal operating pressure. Operational experience at Quad Cities Station (start-up operation following the Unit 1 Cycle 11 Refuel Outage) has demonstrated that the current provisions of TS 3.5.C.2 and 3.5.E.2 have resulted in unnecessary cycling of the reactor through the heat-up range and a reduction in the ability to determine adequate corrective maintenance actions (Reference (b)).

The potential for unnecessary cycling of the units is very high due to the fact that acceptable performance during low pressure testing does not assure an acceptable level of performance at higher pressures. Potential test failures during the test at normal operating pressure would lead to a unit shutdown to less than 150 psig within 24 hours where HPCI or RCIC repairs would be implemented. At this reduced system pressure, however, the ability to determine the root cause of the flow test failure, and identify effective corrective actions is severely hindered. In order to effectively determine the root cause of the test failure, as well as identify adequate corrective actions, maintenance personnel must be able to diagnose and troubleshoot the respective system's governor and controller while steam is being supplied to the system turbine at the normal operating pressure. Operational experience at Quad Cities Station following the recent (Spring 1991) refuel outage has demonstrated that the LCO time frame of 24 hours (3.2.C.4 and 3.2.E.4) is inadequate to identify the root cause of the test failure and implement corrective actions. The decreased ability to identify effective corrective actions also decreases the probability that the corrective actions will result in a successful flow test when the reactor pressure is subsequently increased to accommodate further testing. If the subsequent test also failed and repairs could not be identified and implemented in the 12-hour time frame allowed by TS 4.5.C.3 and 4.5.E.3, the reactor pressure would again be reduced to less than 150 psig, thereby causing unnecessary cycling of the unit.

The present requirements have been found to be unduly restrictive during plant startups in not permitting continued plant operation when acceptable levels of safety are provided by the action requirements of current Specification 3.5.C.3 and 3.5.E.3. TS 3.5.C.3 and 3.5.E.3 actions are consistent with the compensatory actions of the STS. These requirements permit continued reactor operation during the succeeding 14 days provided that for:

HPCI inoperable:

The automatic pressure relief subsystem, the core spray subsystem, the LPCI mode of the RHR system and the RCIC system must remain operable until the HPCI system is made operable.

RCIC inoperable:

The HPCI system must remain operable until the RCIC system is made operable.

The compensatory measures described above, combined with a reduced flow capability (as opposed to complete unavailability of the system), ensure an acceptable level of safety, given a failure of the flow test at normal operating pressure (subsequent to passing the low pressure flow test).

**DESCRIPTION OF THE NEED TO CHANGE THE CURRENT REQUIREMENTS (cont'd)**

The proposed change to TS 3.5.C.2 and 3.5.E.2 would:

1. Reduce the likelihood of unnecessary cycling of the reactor through the heat-up range, thereby reducing challenges to safety systems and fatigue cycling of the reactor vessel and components.
2. Enhance the ability to determine and implement effective corrective actions which will increase the probability of a successful flow test when the reactor pressure is subsequently increased to the normal operating pressure.
3. Ensure that continued operation is not permitted unless the necessary compensatory measures are in place that will permit an acceptable level of safety.

**DETAILED DESCRIPTION AND BASES OF THE PROPOSED CHANGES**

The proposed change would limit the action provision of Specifications 3.5.C.2 and 3.5.E.2 to a failure to adequately perform the flow rate testing for HPCI and RCIC at low reactor pressure. Any subsequent failure of the HPCI or RCIC subsystems at the higher pressure flow rate test would result in application of current Action 3.5.C.3 (3.5.E.3). These actions implement the STS provisions which allow a 14 day allowable outage time; provided the remaining high pressure injection system and low pressure ECCS subsystems are operable. The proposed amendment revision would change Specification 3.5.C.2 (3.5.E.2) to read as follows:

"During startup following a refuel outage or an outage in which work has performed that directly affects HPCI (RCIC) system operability, if the testing requirements of 4.5.C.3.a (4.5.E.3.a.) cannot be met, continued reactor startup is not permitted. The HPCI (RCIC) subsystem shall be declared inoperable, and the provisions of Specification 3.5.C.4 (3.5.E.4) shall be implemented."

The proposed change is consistent with STS and current BWR industry practice in permitting reactor startup to continue upon successful completion of the low pressure flow rate test while allowing remedial measures to permit a 14 day allowable outage time for a single high pressure injection system, once normal operating reactor pressure is achieved. This also requires that the remaining high pressure injection system and low pressure ECCS subsystems are operable. No reliance on any action provision is made while changing the operating mode of the Unit in the proposed amendment nor would the Unit be allowed to operate in any manner which has not been previously evaluated.

ATTACHMENT 2  
SUMMARY OF THE PROPOSED CHANGE TO APPENDIX A  
TECHNICAL SPECIFICATIONS QUAD CITIES STATION  
UNIT 1 (DPR-29) & UNIT 2 (DPR-30)

Unit 1 (DPR-29)

Page 3.5/4.5-5

- \* Change Specification reference in TS 3.5.C.2 from 4.5.C.3 to 4.5.C.3.a.

Page 3.5/4.5-7

- \* Change Specification reference in TS 3.5.E.2 from 4.5.E.3 to 4.5.E.3.a.

Unit 2 (DPR-30)

Page 3.5/4.5-4a

- \* Change Specification reference in TS 3.5.C.2 from 4.5.C.3 to 4.5.C.3.a.

Page 3.5/4.5-6

- \* Change Specification reference in TS 3.5.E.2 from 4.5.C.3 to 4.5.C.3.a.