

Exelon Generation Company, LLC www.exeloncorp.com
Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, IL 61242-9740

SVP-02-104

December 6, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Unit 1
Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: 10 CFR 50.46, 30-Day Report for Quad Cities Nuclear Power Station, Unit 1

Reference: Letter from T. J. Tulon (Exelon Generation Company, LLC) to U. S. NRC,
"Transmittal of 10 CFR 50.46, Acceptance criteria for emergency core cooling
systems for light-water nuclear power reactors, Annual Report for Quad Cities
Units 1 and 2," dated May 9, 2002.

The purpose of this letter is to provide the 30-day report required by 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," for Quad Cities Nuclear Power Station, Unit 1. This report is required due to the implementation of Extended Power Uprate (EPU) and the transition to General Electric (GE) GE14 fuel during Cycle 18 operation. Unit 1 Cycle 18 startup commenced on November 25, 2002.

The previous Unit 1 10 CFR 50.46 letter was transmitted in the reference letter, which reported peak clad temperature (PCT) changes due to the implementation of Improved Technical Specifications and the impact of errors in the LOCA evaluation models.

Should you have any questions concerning this letter, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,



Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

Attachment: Quad Cities Nuclear Power Station Unit 1 10 CFR 50.46 Report

cc: Regional Administrator – NRC Region III
 NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

A001

Attachment
Quad Cities Nuclear Power Station Unit 1
10 CFR 50.46 Report

PLANT NAME: Quad Cities Nuclear Power Station Unit 1
 ECCS EVALUATION MODEL: SAFER/GESTR-LOCA
 REPORT REVISION DATE: 11/25/02
 CURRENT OPERATING CYCLE: 18

ANALYSIS OF RECORD

Evaluation Model: The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident, Volume III, SAFER/GESTR Application Methodology, NEDE-23785-1-PA, General Electric Company, Revision 1, October 1984.

Calculations:

"SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Dresden Nuclear Station 2 and 3 and Quad Cities Nuclear Station Units 1 and 2," NEDC-32990P, Revision 1, GE Nuclear Energy, September 2001.

Fuel Analyzed in Calculation: GE9/10, ATRIUM-9B and GE14
 Limiting Fuel Type: GE14
 Limiting Single Failure: Diesel Generator
 Limiting Break Size and Location: 1.0 Double-Ended Guillotine in a Recirculation Suction Pipe

Reference Peak Cladding Temperature (PCT) PCT = 2110°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

None (1)	$\Delta PCT = 0^\circ F$
Net PCT	2110 °F

B. CURRENT LOCA MODEL ASSESSMENTS

WEVOL S1 Volume Error (2)	$\Delta PCT = 0^\circ F$
CS and LPCI Leakage (3)	$\Delta PCT = 0^\circ F$
Change in DG start time requirement (4)	$\Delta PCT = 0^\circ F$
Total PCT change from current assessments	$\Sigma \Delta PCT = 0^\circ F$
Cumulative PCT change from current assessments	$\Sigma \Delta PCT = 0^\circ F$
Net PCT	2110 °F

Attachment
Quad Cities Nuclear Power Station Unit 1
10 CFR 50.46 Report

10CFR50.46 Assessment Notes

1. New LOCA Analysis for Quad Cities Nuclear Power Station Unit 1

Unit 1 implemented GE LOCA analysis and GE14 fuel with Quad Cities Nuclear Power Station (QCNPS), Unit 1 Cycle 18 startup on November 25, 2002. Therefore, both QCNPS Units 1 and 2 are being maintained under the same LOCA analysis.

[Reference: SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Dresden Nuclear Station 2 and 3 and Quad Cities Nuclear Station Units 1 and 2, NEDC-32990P, Revision 1, GE Nuclear Energy, September 2001.]

2. Current LOCA Assessment for GE Fuel

GE reported that an error was found in the WEVOL code, which affects the calculated vessel volume in the downcomer region. The free volume in the region of the shroud head is calculated incorrectly. The code did not properly account for the volume of the standpipes inside the shroud head thickness. This resulted in the value for the free volume in the downcomer being too small by 4-10 ft³. GE determined that the PCT impact of this error on all fuel types to be negligible.

[Reference: 10 CFR 50.46 Notification Letter, 2002-05, August 26, 2002.]

3. Current LOCA Assessment

The R17 inspection at QCNPS Unit 1 identified increased lengths in the existing Low Pressure Core Spray (LPCS) piping cracks. No new LPCS cracks were detected. The same inspection identified new cracks near the tail pipe of a Jet Pump (JP) diffuser. GE assessed the leakage due to changes in the existing LPCS cracks and new JP cracks. The leakage at rated LPCS pump flow due to piping cracks increased from 7.5 GPM to 27.3 GPM for 2 cycles of operation. The leakage at rated Low Pressure Coolant Injection (LPCI) pump flow is 20.6 GPM for 2 cycles of operation. The R17 inspection at QCNPS Unit 1 also identified incomplete JP slip joint engagement for 18 jet pumps. The additional leakage assessed by GE for this change is 14.2 GPM for 2 cycles of operation. The increase in LPCS and LPCI leakage were evaluated and determined to be bounded by conservatism assumed in the LOCA analysis. The incomplete JP slip joint was evaluated for effect on long-term cooling and determined not to be significant to delay or prevent reaching 2/3-core height. The same evaluation concluded that leakage due to incomplete slip joint engagement will not affect reflooding and peak clad temperature (PCT).

[Reference: Impact of Leakage through Core Spray and Jet Pump Diffuser Crack Indications at Quad Cities Unit 1, NF:MW:02-0461, November 20, 2002.]

4. Current LOCA Assessment for GE Fuel

The emergency diesel generator start time was changed from a 10 second requirement in ITS to 13 seconds. This increase in allowed start time will not change the assumed LOCA analysis sequence of events and thus PCT was not affected by this change. The change was submitted to the NRC and approval for this TS amendment request was received on July 17, 2002.

[Reference: Quad Cities LOCA Diesel Generator and ECCS Sequencing, Calculation No. QDC-6600-N-1218, February 5, 2002.]