

Commonwealth Edison Company
Quad Cities Generating Station
22710 206th Avenue North
Cordova, IL 61242-9740
Tel 309-654-2241



May 12, 2000

SVP-00-087

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: 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

- References:
- 1) Letter from J. P. Dimmette, Jr. (ComEd), SVP-99-098, to USNRC dated May 17, 1999, "Quad Cities Nuclear Power Station, Units 1 and 2, Facility Operating License Nos. DPR-29 and DPR-30, NRC Docket Nos. 50-254 and 50-265, Plant Specific Emergency Core Cooling System (ECCS) Evaluation Changes and Annual 10 CFR 50.46 Report"
 - 2) Letter from J. P. Dimmette, Jr. (ComEd), SVP-99-208, to USNRC dated November 8, 1999, "Quad Cities Nuclear Power Station, Units 1 and 2, Facility Operating License Nos. DPR-29 and DPR-30, NRC Docket Nos. 50-254 and 50-265, Plant Specific Emergency Core Cooling System (ECCS) Evaluation Changes, Thirty Day 10 CFR 50.46 Report"

The purpose of this letter is to satisfy the annual reporting requirement for 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light water nuclear power reactors," for the Quad Cities Nuclear Power Station.

The attachments describe all changes in accumulated peak cladding temperature (PCT) since the last annual submittal, Reference 1 and the thirty day reportable change in PCT Reference 2.

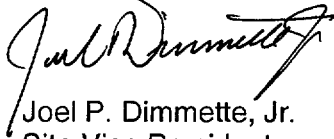
In February 2000, Siemens reanalyzed ATRIUM-9B fuel with corrections made for all known computer code errors and modeling assessments previously reported. This provided a new analysis of record and a small reduction in PCT of nine degrees as compared to the value reported in Reference 2. There are no changes to the General Electric fuel PCT.

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May 12, 2000
U.S. Nuclear Regulatory Commission
Page 2

Should you have any questions concerning this letter, please contact Mr. C.C. Peterson at (309) 654-2241, extension 3609.

Respectfully,



Joel P. Dimmette, Jr.
Site Vice President
Quad Cities Nuclear Power Station

Attachments:

- Attachment A: Quad Cities Unit 1, 10 CFR 50.46 Report (GE Fuel)
- Attachment B: Quad Cities Unit 1, 10 CFR 50.46 Report (Siemens Fuel)
- Attachment C: Quad Cities Unit 2, 10 CFR 50.46 Report (GE Fuel)
- Attachment D: Quad Cities Unit 2, 10 CFR 50.46 Report (Siemens Fuel)

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

Attachment A
Quad Cities Unit 1, 10 CFR 50.46 Report (GE Fuel)
Page 1 of 2

PLANT NAME: Quad Cities Unit 1
REPORT REVISION DATE: 5/12/00
CURRENT OPERATING CYCLE: 16

ANALYSIS OF RECORD

ECCS Evaluation Model: SAFER/GESTR-LOCA, NEDE-24011-P-A-8-US, May 1986

Calculation: General Electric document NEDC-31345P, Revision 2, dated July, 1989

Fuel: P8x8R/BP8x8R, which bounds GE8, GE9 and GE10

Limiting Single Failure: Battery Failure

Limiting Break Size and Location: 1.0 Double Ended Guillotine Recirculation Suction Line Break

MARGIN ALLOCATION
(on the following page)

Reference PCT

PCT = 1382°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS*

LPCI injection delay to 75 seconds	Δ PCT = +288°F
Extended Operating Domain and Equipment OOS	Δ PCT = +10°F
Safety Evaluation Report for Core Spray Header Flaw	Δ PCT = +110°F
Replacement Access hole cover modification	Δ PCT = +10°F
CS injection valve stroke time increased to 50 seconds	Δ PCT = +0°F
Bottom Head Drain Flowpath	Δ PCT = +10°F
Remove NRC SER requirement for Core Spray Header Flaw	Δ PCT = -110°F
CS Tee Box repair including CS piping leakage	Δ PCT = +40°F
Jet Pump Riser repair penalty	Δ PCT = +20°F
Shroud repair including access hole cover	Δ PCT = +15°F
Remove penalty for Replacement Access hole cover	Δ PCT = -10°F
LPCI and CS injection pressure permissive	Δ PCT = +10°F
LPCI, HPCI and CS reduction due to minimum flow	Δ PCT = +75°F
LPCI system reduced shut off head capability	Δ PCT = +0°F
LPCI Loop Select Delay	Δ PCT = +0°F
HPCI Fluid Temperatures Range	Δ PCT = +0°F
LPCI and CS Pumps Initiating Signals	Δ PCT = +0°F
ADS Valves Opening and Closing Delay Time	Δ PCT = +0°F
DG Total Output Closure Time Delay	Δ PCT = +0°F
MSIV Closure Initiation Time	Δ PCT = +0°F
Jet Pump Riser Flaw penalty	Δ PCT = +175°F
Jet Pump Riser Flaw Repair	Δ PCT = -175°F

Prior Assessments PCT

PCT = 1850°F

*Reported to USNRC on November 8, 1999

B. CURRENT LOCA MODEL ASSESSMENTS

None

Total PCT Change from Current Assessments	$\sum \Delta$ PCT = 0°F
Cumulative PCT Change from Current Assessments	$\sum \Delta$ PCT = 0°F

NET PCT

PCT = 1850°F

Attachment B
Quad Cities Unit 1, 10 CFR 50.46 Report (Siemens Fuel)
Page 1 of 2

PLANT NAME: Quad Cities Unit 1
REPORT REVISION DATE: 5/12/00
CURRENT OPERATING CYCLE: 16

ANALYSIS OF RECORD

Evaluation Model: Advanced Nuclear Fuels Corporation Methodology for
Boiling Water Reactors EXEM BWR Evaluation Model,
ANF-91-048(P)(A), dated January, 1993.

Calculations:

1. "Quad Cities LOCA-ECCS Analysis MAPLHGR Limits for ATRIUM™-
9B Fuel," EMF-2348(P), Revision 0, Siemens Power Corporation, dated
February 2000.
2. "LOCA Break Spectrum Analysis for Quad Cities Units 1 and 2,"
EMF-96-184(P), Siemens Power Corporation, dated January 1997.

Fuel: ATRIUM™-9B

Limiting Single Failure: LPCI Injection Valve

Limiting Break Size and Location: 1.0 (DEG) Double-Ended Guillotine in a
Recirculation Suction Pipe

MARGIN ALLOCATION
(on the following page)

Attachment B
Quad Cities Unit 1, 10 CFR 50.46 Report (Siemens Fuel)
Page 2 of 2

Reference PCT**

PCT = 1952°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS*

Prior PCT

PCT = 1961°F

*Reported to USNRC on November 8, 1999

B. CURRENT LOCA MODEL ASSESSMENTS**

None

Total PCT Change from Current Assessments

$\sum \Delta PCT = 0^\circ F$

Cumulative PCT Change from Current Assessments

$\sum |\Delta PCT| = 0^\circ F$

NET PCT

PCT = 1952°F

**In February 2000, Siemens reanalyzed ATRIUM-9B fuel with corrections made for all known computer code errors and modeling assessments previously reported. This provided a new analysis of record and a small reduction in PCT.

Attachment C
Quad Cities Unit 2, 10 CFR 50.46 Report (GE Fuel)
Page 1 of 2

PLANT NAME: Quad Cities Unit 2
REPORT REVISION DATE: 5/12/00
CURRENT OPERATING CYCLE: 16

ANALYSIS OF RECORD

ECCS Evaluation Model: SAFER/GESTR-LOCA, NEDE-24011-P-A-8-US, May 1986

Calculation: General Electric document NEDC-31345P, Revision 2, dated July, 1989

Fuel: P8x8R/BP8x8R, which bounds GE8, GE9 and GE10

Limiting Single Failure: Battery Failure

Limiting Break Size and Location: 1.0 Double Ended Guillotine Recirculation Suction Line Break

MARGIN ALLOCATION
(on the following page)

Attachment C
Quad Cities Unit 2, 10 CFR 50.46 Report (GE Fuel)
Page 2 of 2

Reference PCT

PCT = 1382°F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS*

LPCI injection delay to 75 seconds	Δ PCT = +288°F
Extended Operating Domain and Equipment OOS	Δ PCT = +10°F
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CS injection valve stroke time increased to 50 seconds	Δ PCT = +0°F
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Jet Pump Riser repair penalty	Δ PCT = +20°F
Shroud repair including access hole cover	Δ PCT = +15°F
Remove penalty for Replacement Access hole cover	Δ PCT = -10°F
LPCI and CS injection pressure permissive	Δ PCT = +10°F
LPCI, HPCI and CS reduction due to minimum flow	Δ PCT = +75°F
LPCI system reduced shut off head capability	Δ PCT = +0°F
LPCI Loop Select Delay	Δ PCT = +0°F
HPCI Fluid Temperatures Range	Δ PCT = +0°F
LPCI and CS Pumps Initiating Signals	Δ PCT = +0°F
ADS Valves Opening and Closing Delay Time	Δ PCT = +0°F
DG Total Output Closure Time Delay	Δ PCT = +0°F
MSIV Closure Initiation Time	Δ PCT = +0°F
Jet Pump Riser Flaw penalty	Δ PCT = +175°F
Jet Pump Riser Flaw Repair	Δ PCT = -175°F

Prior Assessments PCT

PCT = 1850°F

*Reported to USNRC on November 8, 1999

B. CURRENT LOCA MODEL ASSESSMENTS

None

Total PCT Change from Current Assessments	$\sum \Delta$ PCT =	0°F
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Cumulative PCT Change from Current Assessments	$\sum \Delta$ PCT =	0°F
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NET PCT

PCT = 1850°F

Attachment D
Quad Cities Unit 2, 10 CFR 50.46 Report (Siemens Fuel)
Page 1 of 2

PLANT NAME: Quad Cities Unit 2
REPORT REVISION DATE: 5/12/00
CURRENT OPERATING CYCLE: 16

ANALYSIS OF RECORD

Evaluation Model: Advanced Nuclear Fuels Corporation Methodology for
Boiling Water Reactors EXEM BWR Evaluation Model,
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Attachment D
Quad Cities Unit 2, 10 CFR 50.46 Report (Siemens Fuel)
Page 2 of 2

Reference PCT**

PCT = 1952°F

MARGIN ALLOCATION

C. PRIOR LOCA MODEL ASSESSMENTS*

Prior PCT

PCT = 1961°F

*Reported to USNRC on November 8, 1999

D. CURRENT LOCA MODEL ASSESSMENTS**

None

Total PCT Change from Current Assessments

$\sum \Delta PCT = 0^\circ F$

Cumulative PCT Change from Current Assessments

$\sum |\Delta PCT| = 0^\circ F$

NET PCT

PCT = 1952°F

**In February 2000, Siemens reanalyzed ATRIUM-9B fuel with corrections made for all known computer code errors and modeling assessments previously reported. This provided a new analysis of record and a small reduction in PCT.