

RS-07-100

10 CFR 50.46

June 22, 2007

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

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: ECCS Evaluation Model Error – 10 CFR 50.46 Report

Reference: Letter from P. R. Simpson (Exelon Generation Company, LLC) to U. S. NRC, "Annual Report of the Emergency Core Cooling System Evaluation Model Changes and Errors Required by 10 CFR 50.46, 'Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors,'" dated April 13, 2007

In accordance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," Exelon Generation Company, LLC (EGC) is submitting the attached information to fulfill the 30-day reporting requirement for Braidwood Station Unit 2 and Byron Station Unit 2.

In the referenced letter, EGC reported the Braidwood Station Units 1 and 2 and Byron Station Units 1 and 2 fuel peak cladding temperatures (PCTs), calculated based on an acceptable evaluation model. The large break loss-of-coolant accident (LBLOCA) was 2141 °F for Braidwood Unit 1 and Byron Unit 1, and 2113 °F for Braidwood Unit 2 and Byron Unit 2. On June 4, 2007, Westinghouse notified EGC of a significant error in the Emergency Core Cooling System (ECCS) evaluation model for LBLOCA that resulted in an increase to the calculated PCT for Braidwood Station Unit 2 and Byron Station Unit 2.

Specifically, a PCT increase of 55 °F has been assessed for the Braidwood Unit 2 LBLOCA and Byron Unit 2 LBLOCA as a result of an error that was discovered in the HOTSPOT code that is used in the LBLOCA evaluation model. As a result of this error, the calculated PCT for the Braidwood Station Unit 2 and Byron Station Unit 2 LBLOCA is now 2168 °F, which remains

within the acceptance criteria set forth in 10 CFR 50.46. Therefore, additional reanalysis is not required.

The error in the HOTSPOT code also resulted in a 20 °F impact to the calculated PCTs for the Braidwood Station Unit 1 and Byron Station Unit 1 LBLOCA. The calculated PCT for the Braidwood Station Unit 1 and Byron Station Unit 1 LBLOCA is now 2161.0 °F.

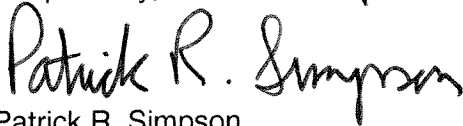
In addition, on May 18, 2007, Westinghouse notified EGC of minor errors with the reactor vessel data collections that potentially affected the vessel inlet and outlet nozzle fluid volume, metal mass, and surface area. The corrected values were evaluated for impact, and a 0 °F penalty was assessed for the Braidwood Station, Units 1 and 2, and Byron Station, Unit 1 and 2, small break loss-of-coolant accident (SBLOCA) analyses. The LBLOCA analyses were not affected by these errors.

The error in the HOTSPOT code associated with the Braidwood Station Unit 1 and Byron Station Unit 1 LBLOCA analysis, as well as the minor errors with the reactor vessel data collections, described above do not constitute a significant change as defined in 10 CFR 50.46. Therefore, reporting of these errors is not required within 30-days. However, the errors are being reported here in order to provide a complete update to the current rack-up sheets for both stations.

Attachment 1 provides updated information regarding the PCT values for the limiting SBLOCA and LBLOCA evaluations for Braidwood Station and Byron Station. Attachment 2 contains a detailed description for each change or error reported. Notes 9 and 10 of Attachment 2 describe the changes made as a result of the errors in the reactor vessel data collections and the HOTSPOT code discussed above.

There are no regulatory commitments contained in this letter. If you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,



Patrick R. Simpson
Manager – Licensing

Attachments:

1. Peak Cladding Temperature Rack-Up Sheets
2. Assessment Notes

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Braidwood Station Unit 1
 ECCS EVALUATION MODEL: Small Break Loss of Coolant Accident (SBLOCA)
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 13

ANALYSIS OF RECORD (AOR)

Evaluation Model: NOTRUMP
 Calculation: Westinghouse CN-LIS-00-208, December 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FNΔH) = 1.70
 Steam Generator Tube Plugging (SGTP) = 5%
 Limiting Break Size and Location: 2" Low Tavg in the Bottom of the Cold Leg

Notes: Zr-4/ZIRLO Clad Fuel

Reference Peak Cladding Temperature (PCT) PCT = 1624.0 °F

MARGIN ALLOCATION

A. PRIOR LOSS OF COOLANT ACCIDENT (LOCA) MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	ΔPCT = 35 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	ΔPCT = 0 °F

NET PCT **PCT = 1659.0 °F**

B. CURRENT LOCA MODEL ASSESSMENTS

Errors in Input Modification Program (IMP) Vessel Nozzle Collections (see note 9)	ΔPCT = 0 °F
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NET PCT **PCT = 1659.0 °F**

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Braidwood Station Unit 1
 ECCS EVALUATION MODEL: Large Break Loss of Coolant Accident (LBLOCA)
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 13

AOR

Evaluation Model: CQD (1996)
 Calculation: Westinghouse CN-LIS-00-7, September 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FN Δ H) = 1.70
 Steam Generator Tube Plugging (SGTP) = 5%
 Limiting Break Size and Location: Guillotine break in the Cold Leg Break

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 2044.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	Δ PCT = 12 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	Δ PCT = 5 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	Δ PCT = 80 °F

NET PCT

PCT = 2141.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

HOTSPOT Fuel Relocation Linear Heat Rate (LHR) Correction (see note 10)	Δ PCT = 20 °F
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NET PCT

PCT = 2161.0 °F

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Braidwood Station Unit 2
 ECCS EVALUATION MODEL: SBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 13

AOR

Evaluation Model: NOTRUMP
 Calculation: Westinghouse CN-LIS-00-208, December 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FN Δ H) = 1.70
 Steam Generator Tube Plugging (SGTP) = 10%
 Limiting Break Size and Location: 2" Low Tavg in the Bottom of the Cold Leg

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 1627.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	Δ PCT = 3 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	Δ PCT = 35 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	Δ PCT = 0 °F

NET PCT

PCT = 1665.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

Errors in IMP Vessel Nozzle Collections (see note 9)	Δ PCT = 0 °F
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NET PCT

PCT = 1665.0 °F

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Braidwood Station Unit 2
 ECCS EVALUATION MODEL: LBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 13

AOR

Evaluation Model: CQD (1996)
 Calculation: Westinghouse CN-LIS-00-7, September 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FN Δ H) = 1.70
 Steam Generator Tube Plugging (SGTP) = 10%
 Limiting Break Size and Location: Guillotine break in the Cold Leg Break

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 2088.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	Δ PCT = 12 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	Δ PCT = 5 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	Δ PCT = 8 °F

NET PCT

PCT = 2113.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

HOTSPOT Fuel Relocation LHR Correction (see note 10)	Δ PCT = 55 °F
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NET PCT

PCT = 2168.0 °F

**ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets**

PLANT NAME: Byron Station Unit 1
 ECCS EVALUATION MODEL: SBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 15

AOR

Evaluation Model: NOTRUMP
 Calculation: Westinghouse CN-LIS-00-208, December 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FNΔH) = 1.70
 Steam Generator Tube Plugging (SGTP) = 5%
 Limiting Break Size and Location: 2" Low Tavg in the Bottom of the Cold Leg

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 1624.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	ΔPCT = 35 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	ΔPCT = 0 °F

NET PCT

PCT = 1659.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

Errors in IMP Vessel Nozzle Collections (see note 9)	ΔPCT = 0 °F
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NET PCT

PCT = 1659.0 °F

**ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets**

PLANT NAME: Byron Station Unit 1
 ECCS EVALUATION MODEL: LBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 15

AOR

Evaluation Model: CQD (1996)
 Calculation: Westinghouse CN-LIS-00-7, September 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Steam Generator Tube Plugging (SGTP) = 5%
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FN Δ H) = 1.70
 Limiting Break Size and Location: Guillotine break in the Cold Leg Break

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 2044.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	Δ PCT = 12 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	Δ PCT = 5 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	Δ PCT = 80 °F

NET PCT

PCT = 2141.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

HOTSPOT Fuel Relocation LHR Correction (see note 10)	Δ PCT = 20 °F
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NET PCT

PCT = 2161.0 °F

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Byron Station Unit 2
 ECCS EVALUATION MODEL: SBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 14

AOR

Evaluation Model: NOTRUMP
 Calculation: Westinghouse CN-LIS-00-208, December 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FN Δ H) = 1.70
 Steam Generator Tube Plugging (SGTP) = 10%
 Limiting Break Size and Location: 2" Low Tavg in the Bottom of the Cold Leg

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 1627.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	Δ PCT = 3 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	Δ PCT = 35 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	Δ PCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	Δ PCT = 0 °F
10 CFR 50.46 report dated May 10, 2007 (see note 8)	Δ PCT = 90 °F

NET PCT

PCT = 1755.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

Errors in IMP Vessel Nozzle Collections (see note 9)	Δ PCT = 0 °F
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NET PCT

PCT = 1755.0 °F

ATTACHMENT 1
Peak Cladding Temperature Rack-Up Sheets

PLANT NAME: Byron Station Unit 2
 ECCS EVALUATION MODEL: LBLOCA
 REPORT REVISION DATE: 06/04/07
 CURRENT OPERATING CYCLE: 14

AOR

Evaluation Model: CQD (1996)
 Calculation: Westinghouse CN-LIS-00-7, September 2000
 Fuel: VANTAGE+ 17 x 17
 Limiting Fuel Type: VANTAGE+ 17 x 17
 Limiting Single Failure: Loss of one train of ECCS flow
 Heat Flux Hot Channel Factor (FQ) = 2.60
 Nuclear Enthalpy Rise Hot Channel Factor (FNΔH) = 1.70
 Steam Generator Tube Plugging (SGTP) = 10%
 Limiting Break Size and Location: Guillotine break in the Cold Leg Break

Notes: Zr-4/ZIRLO Clad Fuel

Reference PCT

PCT = 2088.0 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

10 CFR 50.46 report dated June 11, 2001 (see note 1)	ΔPCT = 12 °F
10 CFR 50.46 report dated April 18, 2002 (see note 2)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2003 (see note 3)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2004 (see note 4)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 14, 2005 (see note 5)	ΔPCT = 5 °F
10 CFR 50.46 report dated April 14, 2006 (see note 6)	ΔPCT = 0 °F
10 CFR 50.46 report dated April 13, 2007 (see note 7)	ΔPCT = 8 °F
10 CFR 50.46 report dated May 10, 2007 (see note 8)	ΔPCT = 0 °F

NET PCT

PCT = 2113.0 °F

B. CURRENT LOCA MODEL ASSESSMENTS

HOTSPOT Fuel Relocation LHR Correction (see note 10)	ΔPCT = 55 °F
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NET PCT

PCT = 2168.0 °F

ATTACHMENT 2

Assessment Notes

1. Prior Loss-of-Coolant Accident (LOCA) Model Assessment

The 10 CFR 50.46 report dated June 11, 2001, reported new large break loss-of-coolant accident (LBLOCA) and small break loss-of-coolant accident (SBLOCA) analyses to support operations at uprated power conditions. The same report assessed the impact from decay heat uncertainty error in Monte Carlo calculations on LBLOCA analysis and the impact from annular axial blankets on SBLOCA analysis. Evaluations for plant conditions and LBLOCA and SBLOCA model changes which resulted in 0 °F peak cladding temperature (PCT) change were reported. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

2. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 18, 2002, reported evaluations for LBLOCA and SBLOCA model changes, which resulted in 0 °F PCT change. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

3. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 14, 2003, reported evaluations for LBLOCA and SBLOCA model changes, which resulted in 0 °F PCT change. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

4. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 14, 2004, reported evaluations for LBLOCA model changes, which resulted in 0 °F PCT change. A SBLOCA assessment related to NOTRUMP bubble rise/drift flux model inconsistency corrections, which resulted in 35 °F PCT assessment, was reported. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

5. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 14, 2005, reported evaluations for LBLOCA model changes, which resulted in a 5 °F PCT change due to the Revised Blowdown Heatup Uncertainty Calculation. Assembly N10S was reconstituted with two stainless steel filler rods during Braidwood Unit 1 Refueling Outage 11. This assembly is reloaded into the core and is in use during Braidwood Unit 1 Cycle 12 operation. The introduction of up to five stainless steel filler rods has been evaluated and shown to have no impact on LBLOCA and SBLOCA analyses. The estimated PCT effect is 0 °F. This assembly will be discharged during Reload 12 and will not be resident in the core for Braidwood Unit 1 Cycle 13. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

6. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 14, 2006, reported evaluations for LBLOCA model changes, which resulted in a 0 °F PCT change due to the Revised Iteration Algorithm for

ATTACHMENT 2

Assessment Notes

Calculating the Average Fuel Temperature, Pellet Radial Profile, Improved Automation of End of Blowdown Time, Thermodynamic Properties from THERMO, Vessel Unheated Conductor Noding and Containment Relative Humidity Assumption. Cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles.

7. Prior LOCA Model Assessment

The 10 CFR 50.46 report dated April 13, 2007, reported evaluations, LOCA model changes and errors. The report documented general code maintenance for NOTRUMP, containment heat sink addition evaluation, AXIOM lead test assembly evaluation, and NOTRUMP refined break spectrum, which resulted in 0 °F PCT impact. In addition, cycle specific evaluations related to axial power shape distribution envelope violation were reported for the applicable operating cycles. For every reload cycle, Westinghouse verifies that the envelope remains limiting; PCT penalties are assessed for violations.

8. Prior LOCA Model Assessment

The 30-day 10 CFR 50.46 report dated May 10, 2007, applicable to Byron Unit 2, reported an assessment of the Emergency Core Cooling System, which evaluated changes in ECCS flow during the recirculation phase due to generic safety issue (GSI)-191 related Safety Injection throttle valve replacements. The evaluation of recirculation phase ECCS flow changes relative to the impact on the current Analysis of Record was performed for the SBLOCA and LBLOCA. The LBLOCA analysis was unaffected and a 0 °F penalty was assessed. Based on the NOTRUMP and SBLOCA calculations performed for Byron Unit 2, a conservative, bounding PCT assessment of +90 °F was applied to the current Byron Unit 2 SBLOCA PCT.

9. Errors in Input Modification Program Vessel Nozzle Collections

Westinghouse discovered some minor errors with the reactor vessel data collections that potentially affected the vessel inlet and outlet nozzle fluid volume, metal mass and surface area. The corrected values were evaluated for impact and 0 °F penalty was assessed for the Byron and Braidwood SBLOCA analysis.

10. HOTSPOT Fuel Relocation Linear Heat Rate Correction

Westinghouse discovered that the effect of fuel relocation on linear heat rate was being calculated, but then later canceled out in the HOTSPOT model coding. The Byron and Braidwood loss-of-coolant accident models were assessed using the corrected HOTSPOT code version. The PCT penalty for Byron Unit 1 and Braidwood Unit 1 was 20 °F and the PCT penalty for Byron Unit 2 and Braidwood Unit 2 was 55 °F.