



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

July 2, 2008

10 CFR 50.46

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - EMERGENCY CORE COOLING SYSTEM (ECCS) EVALUATION MODEL CHANGES - ANNUAL NOTIFICATION AND REPORTING

- References:
- (1) Watts Bar Nuclear Plant (WBN) Unit 1 - Emergency Core Cooling System (ECCS) Evaluation Model Changes - 30 Day Report and Annual Notification and Reporting for 2006, dated July 3, 2007.
 - (2) Westinghouse Letter LTR-LIS-08-66 to TVA dated January 31, 2008 - 10 CFR 50.46 Annual Notification and Reporting for 2007.
 - (3) Westinghouse Letter LTR-LIS-08-292 to TVA dated April 14, 2008 - 10 CFR 50.46 Report for CCFL Global Volume Error.
 - (4) Westinghouse Letter LTR-LIS-08-385 to TVA dated June 2, 2008 - 10 CFR 50.46 Report for Errors in Reactor Vessel Lower Plenum Surface Area Calculations.

This letter provides the annual update report required by 10 CFR 50.46. The enclosed information addresses changes or errors in the WBN ECCS evaluation model that affect calculation of peak cladding temperature (PCT). This report covers the period from WBN's last 10 CFR 50.46 annual report, which was submitted by letter in Reference 1, through June, 2008. WBN's ECCS evaluation model is contractually maintained by Westinghouse Electric Company, who provided the enclosed updates.

The changes to the model that have been made since our last update are described in Enclosure 1. The PCT margin allocations resulting from the changes listed in Enclosure 1 are summarized in Enclosure 2. This update includes a 20°F penalty for Cycle 9, the current cycle, only. Both Cycle 9 and general rackup sheets are provided in Enclosure 2

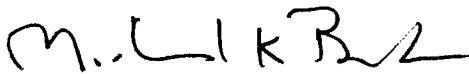
A002
NER

U.S. Nuclear Regulatory Commission
Page 2

JUL 02 2008

There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter, please call me at (423) 365-1824.

Sincerely,



M. K. Brandon
Manager, Site Licensing
and Industry Affairs

Enclosures

cc (Enclosures):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

ATTN: Patrick D. Milano, Project Manager
U.S. Nuclear Regulatory Commission
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
MS O 8 H4
Washington, DC 20555-0001

U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

ENCLOSURE 1

Changes to ECCS Evaluation Model

**ERRORS IN REACTOR VESSEL NOZZLE DATA COLLECTIONS
(Non-Discretionary Change)**

Background

Some minor errors were discovered in the reactor vessel nozzle data collections that potentially affect the vessel inlet and outlet nozzle fluid volume, metal mass and surface area. The corrected values have been evaluated for impact on current licensing-basis analysis results and will be incorporated into the plant-specific input databases on a forward-fit basis. These changes represent a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1981 Westinghouse Large Break LOCA Evaluation Model with BASH
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

The differences in the vessel inlet and outlet nozzle fluid volume, metal mass and surface area are relatively minor and would be expected to produce a negligible effect on large break and small break LOCA analysis results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

**PUMP WEIR RESISTANCE MODELING
(Non-Discretionary Change)**

Background

Review of the reactor coolant pump data collections identified instances of either including a weir resistance for a design without a weir or double-counting the weir resistance for a design with a weir. The corrected resistances have been evaluated for impact on existing analysis results and will be incorporated into the plant-specific input databases on a forward-fit basis. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1981 Westinghouse Large Break LOCA Evaluation Model with BASH

1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

Resolving the identified discrepancies has been evaluated as having a negligible effect on existing results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

**GENERAL CODE MAINTENANCE
(Discretionary Change)**

Background

Various changes have been made to enhance the usability of the codes and to help preclude errors in analyses. This includes items such as modifying input variable definitions, units, and defaults; improving the input diagnostic checks; enhancing the code output; optimizing active coding; and, eliminating inactive coding. These changes represent Discretionary Changes that will be implemented on a forward-fit basis in accordance with Section 4.1.1 of WCAP-13451.

Affected Evaluation Model(s)

1981 Westinghouse Large Break LOCA Evaluation Model with BASH
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

The nature of these changes leads to an estimated PCT impact of 0°F.

**CCFL GLOBAL VOLUME ERROR
(Non-Discretionary Change)**

Background

An error was identified during the course of a recent Best Estimate Large Break LOCA analysis in which the volume between the core barrel and the baffle plates in the CCFL region above the active fuel length was modeled incorrectly. The corrected values have been evaluated for impact on the current licensing-basis analysis results. This error represents a non-discretionary change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

The CCFL global volume modeling error has been generically evaluated to have a negligible impact on PCT for affected analyses and a penalty of 0 °F is assigned.

**ERRORS IN REACTOR VESSEL LOWER PLENUM SURFACE AREA CALCULATIONS
(Non-Discretionary Change)**

Background

Two errors were discovered in the calculations of reactor vessel lower plenum surface area. The corrected values have been evaluated for impact on current licensing-basis analysis results and will be incorporated on a forward-fit basis. These changes represent a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1981 Westinghouse Large Break LOCA Evaluation Model with BASH
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

The differences in vessel lower plenum surface area are relatively minor and would be expected to produce a negligible effect on large and small break LOCA analysis results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

Plant Specific Text

**WAT CYCLE 9 PMID VIOLATION
(Discretionary Change)**

Background

The Watts Bar Unit 1 Cycle 9 reload core design resulted in several violations of the PMID limit used in the Large Break LOCA Analysis. These violations were evaluated for Watts Bar Unit 1 Cycle 9 operation. This change represents a Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model

Estimated Effect

The impact of the PMID violation for Watts Bar Unit 1 Cycle 9 was determined via a plant-specific evaluation to be 20°F for Reflood 1 and Reflood 2.

ENCLOSURE 2

PCT Rackup Sheets

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1 /15/08

**Cycle 9, RSG
 Composite**

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1892	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	-4	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	0	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-131	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-10	10	
6 . PMID Violation Evaluation	20	12	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	65	11	
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT =	1865	

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

Cycle 9, RSG

Revision Date: 1 /15/08

Composite

- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.
- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004," April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.
- 12 . LTR-LIS-07-893, "10 CFR 50.46 Reporting Text for Watts Bar Unit 1 Cycle 9 RSAC PMID Violation Evaluation and Revised PCT Rackup Sheets," December 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1 /15/08

Cycle 9, RSG
Reflood 1

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1656	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	56	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	60	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-37	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-50	10	
6 . PMID Violation Evaluation	20	12	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	0	11	
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT =	1738	

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

Cycle 9, RSG

Revision Date: 1 /15/08

Reflood 1

- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.
- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004," April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.
- 12 . LTR-LIS-07-893, "10 CFR 50.46 Reporting Text for Watts Bar Unit 1 Cycle 9 RSAC PMID Violation Evaluation and Revised PCT Rackup Sheets," December 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1 /15/08

Cycle 9, RSG
Reflood 2

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1892	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	-4	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	0	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-131	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-10	10	
6 . PMID Violation Evaluation	20	12	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	65	11	
D. OTHER*			
1 . None	0		

LICENSING BASIS PCT + PCT ASSESSMENTS **PCT = 1865**

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

Cycle 9, RSG

Revision Date: 1 /15/08

Reflood 2

- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.
- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004," April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.
- 12 . LTR-LIS-07-893, "10 CFR 50.46 Reporting Text for Watts Bar Unit 1 Cycle 9 RSAC PMID Violation Evaluation and Revised PCT Rackup Sheets," December 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1/15/08

RSG
Composite

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1892	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	-4	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	0	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-131	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-10	10	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	65	11	
D. OTHER*			
1 . None	0		

LICENSING BASIS PCT + PCT ASSESSMENTS **PCT = 1845**

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.
- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

RSG

Revision Date: 1 /15/08

Composite

- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004, " April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1/15/08

RSG
Reflood 1

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1656	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	56	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	60	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-37	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-50	10	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	0	11	
D. OTHER*			
1 . None	0		

LICENSING BASIS PCT + PCT ASSESSMENTS **PCT = 1718**

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.
- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

RSG

Revision Date: 1 /15/08

Reflood 1

- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004," April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

RSG

Revision Date: 1/15/08

Reflood 2

Analysis Information

EM: CQD (1996) **Analysis Date:** 8/1/98 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.65
Fuel: Vantage + **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1892	1,2	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . Vessel Channel DX Error	-4	3	
2 . MONTECF Decay Heat Uncertainty Error	4	6	
3 . Input Error Resulting in Incomplete Solution Matrix	0	7	
4 . Tavg Bias Error	8	7	
5 . Revised Blowdown Heatup Uncertainty Distribution	5	8	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Accumulator Line/Pressurizer Surge Line Data Evaluation	-131	4	
2 . Increased Accumulator Temperature Range Evaluation	4	5	
3 . 1.4% Uprate Evaluation	12	5	
4 . Increased Stroke Time for the ECCS Valves	0	9	
5 . Replacement Steam Generators (D3 to 68AXP)	-10	10	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . HOTSPOT Fuel Relocation Error	65	11	
D. OTHER*			
1 . None	0		

LICENSING BASIS PCT + PCT ASSESSMENTS **PCT = 1845**

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WCAP-14839, Rev. 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Nuclear Plant," August 1998.
- 2 . WAT-D-10499, "Tennessee Valley Authority Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1997," February 27, 1998.
- 3 . WAT-D-10618, "Tennessee Valley Authority, Watts Bar Nuclear Plant Units 1 and 2, 10 CFR 50.46 Annual Notification and Reporting for 1998," March 5, 1999.
- 4 . WAT-D-10725, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, 10 CFR 50.46 Annual Notification and Reporting for 1999," February 23, 2000.

Westinghouse LOCA Peak Clad Temperature Summary for Best Estimate Large Break

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority

RSG

Revision Date: 1/15/08

Reflood 2

- 5 . WAT-D-10840, "Tennessee Valley Authority, Watts Bar Nuclear Plant Unit 1, Final Deliverables for 1.4% Uprate Program," August 31, 2000.
- 6 . WAT-D-10904, "10 CFR 50.46 Annual Notification and Reporting for 2000," February 2001.
- 7 . WAT-D-11225, "10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.
- 8 . WAT-D-11334, "10 CFR 50.46 Annual Notification and Reporting for 2004," April 2005.
- 9 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 10 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 11 . LTR-LIS-07-378, "10 CFR 50.46 Reporting Text for HOTSPOT Fuel Relocation Error and Revised PCT Rackup Sheets for Watts Bar Unit 1," June 2007.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

RSG

Plant Name: Watts Bar Unit 1
Utility Name: Tennessee Valley Authority
Revision Date: 1/15/08

Analysis Information

EM: NOTRUMP **Analysis Date:** 5/17/04 **Limiting Break Size:** 4 inch
FQ: 2.5 **FdH:** 1.65
Fuel: RFA-2 **SGTP (%):** 12
Notes: Mixed Core - Vantage + / Performance + / RFA-2

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	1132	1	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Increased Stroke Time for the ECCS Valves	0	2	
C. 2007 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . Leaking SIS Relief Valve	120	3	
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1252		

* It is recommended that the licensee determine if these PCT allocations be considered with respect to 10 CFR 50.46 reporting requirements.

References:

- 1 . WTV-RSG-06-015, "LOCA & Non-LOCA Analysis Summary for Replacement Steam Generator," February 2006.
- 2 . WAT-D-11285, "Evaluation of Proposed Changes to the Stroke Time for the ECCS Valves," November 2004.
- 3 . WAT-D-11360, "Safety Injection Pump Discharge Relief Valve Leakage Evaluation," July 2005.

Notes:

None