10 CFR 50.46(a)(3)(ii)

A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear Generating Station

Thomas N. Weber
Department Leader
Regulatory Affairs

Tel. 623-393-5764
Fax 623-393-5442

Mail Station 7636
PO Box 52034
Phoenix, Arizona 85072-2034

102-06347-TNW/RKR
April 22, 2011

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Emergency Core Cooling System (ECCS) Performance Evaluation Models, 10 CFR 50.46(a)(3)(ii) Annual Report For Calendar Year 2010

Pursuant to 10 CFR 50.46(a)(3)(ii), Arizona Public Service Company (APS) is providing a summary of the cumulative effects on calculated peak clad temperature (PCT) for PVNGS due to changes or errors in ECCS performance evaluation models. As described herein, there was one change that affected the PVNGS large break loss of coolant accident (LOCA) peak clad temperature (PCT) calculation by as much as 4°F for Unit 3 in Calendar Year 2010. There were no changes that affected the PVNGS large break LOCA PCT calculation for Units 1 and 2. There were no known errors or changes that affected the small break LOCA PCT calculation. Additionally, because PCT is not calculated as part of the post LOCA long-term cooling (LTC) analysis, there are no changes or errors in the LTC models that affect PCT.

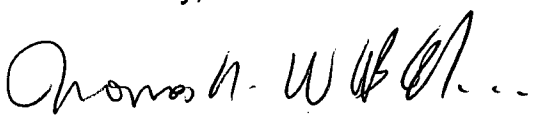
The enclosures provide a more detailed discussion of the changes and errors associated with the large break LOCA analysis and the changes and errors in Westinghouse (formerly Combustion Engineering) models for Pressurized Water Reactors (PWRs) ECCS performance analysis in calendar year 2010.

A002
NRR

No commitments are being made to the NRC by this letter.

Should you need further information regarding this submittal, please contact Russell A. Stroud, Licensing Section Leader, at (623) 393-5111.

Sincerely,



TNW/RAS/RKR/gat

Enclosures
1. Summary of Cumulative Effects on Calculated Peak Clad Temperature (PCT) for PVNGS Due to Changes/Errors in ECCS Performance Evaluation Models
2. Westinghouse Electric Company Letter, "Palo Verde Nuclear Generating Station Units 1, 2, and 3 10 CFR 50.46 Annual Notification and Reporting for 2010," letter number LTR-LAM-11-3, dated January 19, 2011
3. Westinghouse Electric Company Letter, "10 CFR 50.46 Report for the Evaluation of the Implementation of NGF LUAs for PVNGS Unit 3 Cycle 16," letter number LTR-LAM-10-63, dated April 30, 2010

cc:

E. E. Collins Jr.	NRC Region IV Regional Administrator
L. K. Gibson	NRC NRR Project Manager for PVNGS
J. R. Hall	NRC NRR Senior Project Manager
M. A. Brown	NRC Senior Resident Inspector for PVNGS

ENCLOSURE 1

Summary of Cumulative Effects on Calculated Peak Clad Temperature (PCT) for PVNGS Due to Changes/Errors in ECCS Performance Evaluation Models

Table 1: Large Break LOCA Margin Summary Sheet for 2010

Plant Name: Palo Verde Nuclear Generating Station Units 1, 2, and 3

Utility Name: Arizona Public Service Company

Evaluation Model: Westinghouse (formerly Combustion Engineering) 1999 EM

Peak Clad Temperature: 2110°F (Analysis-of-Record reported in PVNGS UFSAR Section 6.3)

			Net PCT Effect	Absolute PCT Effect
A.	Cumulative 10 CFR 50.46 Changes and Error Corrections – Previously Reported[(a)]	ΔPCT =	+ 4°F (Unit 1 Only)	+ 4°F (Unit 1 Only)
B.	10 CFR 50.46 Changes and Error Corrections – New for CY 2010			
	1. Plant Modification; Insertion of 8 NGF Lead Use Assemblies (LUAs) Into PVNGS Unit 3 Core	ΔPCT =	+ 4°F (Unit 3 Only)	+ 4°F (Unit 3 Only)
C.	Absolute Sum of Cumulative 10 CFR 50.46 Changes and Error Corrections	ΔPCT =		+ 4°F (Unit 1) + 0°F (Unit 2) + 4°F (Unit 3)
D.	Licensing Basis PCT (Reported in UFSAR) + Cumulative PCT Assessments (Changes and Error Corrections)			2110°F (Unit 1) 2106°F (Unit 2) 2110°F (Unit 3)

Note: (a) PVNGS reanalyzed the Large Break LOCA event with an NRC approved Evaluation Model in 2009, as reported in Letter No. 102-06113 "30-Day Report Pursuant to 10 CFR 50.46(a)(3)(ii) and Submittal of Large Break Loss of Coolant Accident Reanalysis Results," dated December 22, 2009 (NRC ADAMS Accession No. ML100040066). The reanalysis incorporated and corrected previously identified changes and errors, resetting the cumulative changes and error corrections that had previously been reported through the end of CY 2008 (NRC ADAMS Accession No. ML091810703).

The sum of the PCT from the most recent Analysis-of-Record (AOR) using an acceptable evaluation model, and the estimated cumulative effects of PCT impacts for changes and error corrections made since that AOR, remains less than 2200°F.

Table 2: Small Break LOCA Margin Summary Sheet for 2010

Plant Name: Palo Verde Nuclear Generating Station Units 1, 2, and 3

Utility Name: Arizona Public Service Company

Evaluation Model: Westinghouse (formerly Combustion Engineering) S2M

Peak Clad Temperature: 1618°F (Analysis-of-Record reported in PVNGS UFSAR Section 6.3)

			Net PCT Effect	Absolute PCT Effect
A.	Cumulative 10 CFR 50.46 Changes and Error Corrections – Previously Reported	ΔPCT =	+ 0°F	+ 0°F
B.	10 CFR 50.46 Changes and Error Corrections – New for CY 2010			
	1. None Identified	ΔPCT =	+ 0°F	+ 0°F
C.	Absolute Sum of Cumulative 10 CFR 50.46 Changes and Error Corrections	ΔPCT =		+ 0°F
D.	Licensing Basis PCT (Reported in UFSAR) + Cumulative PCT Assessments (Changes and Error Corrections)			1618°F

The sum of the PCT from the most recent Analysis-of-Record (AOR) using an acceptable evaluation model, and the estimated cumulative effects of PCT impacts for changes and error corrections made since that AOR, remains less than 2200°F.

ENCLOSURE 2

Westinghouse Electric Company Letter, "Palo Verde Nuclear Generating Station Units 1, 2, and 3 10 CFR 50.46 Annual Notification and Reporting for 2010," letter number LTR-LAM-11-3, dated January 19, 2011

Westinghouse Electric Company
Nuclear Services
20 International Drive
Windsor, Connecticut 06095
USA

Direct tel: (860) 731-6734
Direct fax: (860) 731-1196
e-mail: maguiraj@westinghouse.com

Our ref: LTR-LAM-11-3

January 19, 2011

Palo Verde Nuclear Generating Station Unit 1, 2 and 3
10 CFR 50.46 Annual Notification and Reporting for 2010

Dear Sir or Madam:

This letter provides 10 CFR 50.46 reporting information pertaining to the Westinghouse Electric Company Emergency Core Cooling System (ECCS) performance Evaluation Models (EMs) and their application to your plant(s) for calendar year 2010.

There were no changes, error corrections or enhancements to the 1999 Evaluation Model (EM), which is the EM used in your plant's Large Break Loss-of-Coolant Accident (LBLOCA) ECCS performance analysis in calendar year 2010. In addition, there were no 2010 changes, error corrections or enhancements to the Supplement 2 Evaluation Model (S2M), which is the EM used in your plant's Small Break Loss-of-Coolant Accident (SBLOCA) ECCS performance analysis.

The Peak Cladding Temperature (PCT) Rackup sheets along with your plant specific evaluation text are enclosed in the Attachment. The rackup sheets, which were obtained from the Westinghouse 10 CFR 50.46 Rackup eRoom, identify the PCTs of the ECCS performance Analyses of Record (AORs) for your plant(s) and the PCT assessments associated with the AORs through the end of calendar year 2010.

This letter is provided for your use in making a determination relative to the reporting requirements of 10 CFR 50.46. The information provided in this letter was prepared in accordance with Westinghouse's Quality Management System (QMS).

Author: (Electronically Approved)*
A. J. Maguire
LOCA Analysis & Methods

Verifier: (Electronically Approved)*
D. W. Atkins
LOCA Analysis & Methods

Verifier: (Electronically Approved)*
E. F. Jageler
LOCA Analysis & Methods

Approved: (Electronically Approved)*
D.W. Atkins for J. Ghergurovich
Manager, LOCA Analysis & Methods

Attachment

Electronically approved records are authenticated in the electronic document management system.

Evaluation of the Implementation of NGF LUAs for PVNGS Unit 3 Cycle 16 Discretionary Change

Background
An ECCS performance analysis was performed to evaluate the impact of the implementation of up to eight (8) NGF LUAs for Palo Verde Unit 3 Cycle 16. The impact was assessed for Peak Cladding Temperature (PCT) results on Large and Small Break Loss-of-Coolant Accident (LBLOCA & SBLOCA) Analyses.

This is considered a 'Discretionary Change' since the implementation of the NGF LUAs is being performed at APS's discretion and not performed to correct an outstanding error.

Affected Evaluation Model(s)
1999EM Large Break Evaluation Model with CEFLASH-4A
S2M Small Break LOCA Evaluation Model with CEFLASH-4AS

Estimated Effect
The impact of the implementation of up to eight (8) NGF LUAs into the Palo Verde Unit 3 Cycle 16 core results in a 4°F increase in PCT for LBLOCA and no impact for SBLOCA.

Reference(s)
1. WCAP-17188-P, Revision 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: Palo Verde Nuclear Generating Station Unit 1
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	1999 EM	**Analysis Date:**	8/31/2009	**Limiting Break Size:**	0.6 DEG/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.1		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**2106**	1	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation for the Insertion of 8 AREVA LTAs into Palo Verde	4	2	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 2110		

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

Reference

1 . CVER-09-62, "Analyis of Record for Large Break LOCA ECCS Performance Analysis Including Replacement Steam Generators and Simplified Head Implementation for PVNGS Units 1, 2, and 3," August 2009.

2 . LTR-OA-08-106, "10 CFR 50.46 Report for PVNGS Units 1, 2, and 3 for an Evaluation for the Insertion of 8 AREVA LTAs and the Correction of an Error in the Steam Generator Economizer Input," December 2008.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Palo Verde Nuclear Generating Station Unit 1
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	S2M	**Analysis Date:**	3/22/2002	**Limiting Break Size:**	0.05 sq ft/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.5		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**1618**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation for the Insertion of 8 AREVA LTAs Into Palo Verde	0	2	
2 . Evaluation of the Simplified Head Assembly	0	3	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 1618		

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

Reference

1 . A-PV-FE-0149, Rev. 001, "Palo Verde Units 1, 2 and 3 S2M Bounding SBLOCA ECCS Performance Analysis," March 2002.

2 . LTR-OA-08-106, "10 CFR 50.46 Report for PVNGS Units 1, 2, and 3 for an Evaluation for the Insertion of 8 AREVA LTAs and the Correction of an Error in the Steam Generator Economizer Input," December 2008.

3 . CVER-09-25, "Interim Evaluation of the Effects of SHA Implementation on PVNGS Units 1, 2, and 3 ECCS Performance," April 2009.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: Palo Verde Nuclear Generating Station Unit 2
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	1999 EM	**Analysis Date:**	8/31/2009	**Limiting Break Size:**	0.6 DEG/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.1		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**2106**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . None	0		
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 2106		

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

Reference

1 . CVER-09-62, "Analysis of Record for Large Break LOCA ECCS Performance Analysis Including Replacement Steam Generators and Simplified Head Implementation for PVNGS Units 1, 2, and 3," August 2009.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Palo Verde Nuclear Generating Station Unit 2
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	S2M	**Analysis Date:**	3/22/2002	**Limiting Break Size:**	0.05 sq ft/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.5		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**1618**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . *Evaluation of the Simplified Head Assembly*	0	2	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 1618		

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

Reference

1 . A-PV-FE-0149, Rev. 001, "Palo Verde Units 1, 2 and 3 S2M Bounding SBLOCA ECCS Performance Analysis," March 2002.
2 . CVER-09-25, "Interim Evaluation of the Effects of SHA Implementation on PVNGS Units 1, 2, and 3 ECCS Performance," April 2009.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	1999 EM	**Analysis Date:**	8/31/2009	**Limiting Break Size:**	0.6 DEG/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.1		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**2106**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . None	0		
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 2106		

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

Reference

1 . CVER-09-62, "Analysis of Record for Large Break LOCA ECCS Performance Analysis Including Replacement Steam Generators and Simplified Head Implementation for PVNGS Units 1, 2, and 3," August 2009.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	S2M	**Analysis Date:**	3/22/2002	**Limiting Break Size:**	0.05 sq ft/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.5		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**1618**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation of the Simplified Head Assembly	0	2	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 1618		

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

Reference

1 . A-PV-FE-0149, Rev. 001, "Palo Verde Units 1, 2 and 3 S2M Bounding SBLOCA ECCS Performance Analysis," March 2002.
2 . CVER-09-25, "Interim Evaluation of the Effects of SHA Implementation on PVNGS Units 1, 2, and 3 ECCS Performance," April 2009.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Cycle 16

Analysis Information

EM:	1999 EM	**Analysis Date:**	8/31/2009	**Limiting Break Size:**	0.6 DEG/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.1		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**2106**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation for the insertion of up to 8 NGF LUAs	4	2	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 2110		

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

Reference

1 . CVER-09-62, "Analysis of Record for Large Break LOCA ECCS Performance Analysis Including Replacement Steam Generators and Simplified Head Implementation for PVNGS Units 1, 2, and 3," August 2009.

2 . WCAP-17188-P, Rev. 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Notes

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3 **Cycle 16**
Utility Name: Arizona Public Service
Revision Date: 1/4/2011

Analysis Information

EM:	S2M	**Analysis Date:**	3/22/2002	**Limiting Break Size:**	0.05 sq ft/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.5		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**1618**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation of the Simplified Head Assembly	0	2	
2 . Evaluation for the insertion of up to 8 NGF LUAs	0	3	
C. 2010 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 1618		

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

Reference

1 . A-PV-FE-0149, Rev. 001, "Palo Verde Units 1, 2, and 3 S2M Bounding SBLOCA ECCS Performance Analysis," March 2002.
2 . CVER-09-25, "Interim Evaluation of the Effects of SHA Implementation on PVNGS Units 1, 2, and 3 ECCS Performance," April 2009.
3 . WCAP-17188-P, Rev. 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Notes

None

RACKUP eRoom Check:

EMs applicable to Palo Verde Nuclear Generating Station Unit 1, 2 and 3:
Appendix K Small Break – S2M
Appendix K Large Break – 1999 EM

2010 Issues

Transmittal Letter	Issue Description
LTR-LAM-10-63	Implementation of NGF LUAs for Unit 3 Cycle 16

ENCLOSURE 3

Westinghouse Electric Company Letter, "10 CFR 50.46 Report for the Evaluation of the Implementation of NGF LUAs for PVNGS Unit 3 Cycle 16," letter number LTR-LAM-10-63, dated April 30, 2010

Westinghouse Electric Company
Nuclear Services
20 International Drive
Windsor, Connecticut 06095
USA

Direct tel: (860) 731-6426
Direct fax: (860) 731-6439
e-mail: atkinsdw@westinghouse.com

Our ref: LTR-LAM-10-63

April 30, 2010

10 CFR 50.46 Report for the Evaluation of the Implementation of NGF LUAs for PVNGS Unit 3 Cycle 16

Dear Sir or Madam:

The attachment documents the 10 CFR 50.46 report and applicable PCT Rackup Sheets for the evaluation of the Implementation of Next Generation Fuel (NGF) Lead Use Assemblies (LUAs) for PVNGS Unit 3 Cycle 16. Please contact your LOCA Plant Cognizant Engineer (PCE) if there are any questions concerning this information.

Author/PCE: (Electronically Approved)*
D. W. Atkins
LOCA Analysis & Methods

Verifier: (Electronically Approved)*
E. F. Jageler
LOCA Analysis & Methods

Approver: (Electronically Approved)*
J. Ghergurovich
Product Manager
LOCA Analysis & Methods

The Attachment is provided on the following pages.

Electronically approved records are authenticated in the electronic document management system.

Evaluation of the Implementation of NGF LUAs for PVNGS Unit 3 Cycle 16 (Discretionary Change)

Background

An ECCS performance analysis was performed to evaluate the impact of the implementation of up to eight (8) NGF LUAs for Palo Verde Unit 3 Cycle 16. The impact was assessed for Peak Cladding Temperature (PCT) results on Large and Small Break Loss-of-Coolant Accident (LBLOCA & SBLOCA) Analyses.

This is considered a 'Discretionary Change' since the implementation of the NGF LUAs is being performed at APS's discretion and not performed to correct an outstanding error.

Affected Evaluation Models

1999EM Large Break Evaluation Model with CEFLASH-4A
S2M Small Break LOCA Evaluation Model with CEFLASH-4AS

Estimated Effect

The impact of the implementation of up to eight (8) NGF LUAs into the Palo Verde Unit 3 Cycle 16 core results in a 4°F increase in PCT for LBLOCA and no impact for SBLOCA.

Reference

1. WCAP-17188-P, Revision 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3
Utility Name: Arizona Public Service
Revision Date: 4 /1 /10

Cycle 16

Analysis Information

EM:	1999 EM	**Analysis Date:**	8/31/09	**Limiting Break Size:**	0.6 DEG/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.1		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**2106**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation for the insertion of up to 8 NGF LUAs	4	2	
C. 2009 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 2110		

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

References:

1 . CVER-09-62, "Analysis of Record for Large Break LOCA ECCS Performance Analysis Including Replacement Steam Generators and Simplified Head Implementation for PVNGS Units 1, 2, and 3," August 2009.

2 . WCAP-17188-P, Rev. 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Notes:

None

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Palo Verde Nuclear Generating Station Unit 3
Utility Name: Arizona Public Service
Revision Date: 4 /1 /10

Cycle 16

Analysis Information

EM:	S2M	**Analysis Date:**	3/22/02	**Limiting Break Size:**	0.05 sq ft/PD
Fuel:	16x16 System 80	**SGTP (%):**	10		
		PLHGR (kW/ft):	13.5		

Notes: 1. Plant Configuration: Rated Core Power = 3990 MWt, Replacement Steam Generators.

2. Fuel Design: 16x16 System 80 with ZIRLO™ cladding, value-added pellets, and erbia burnable absorbers.

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	**1618**	**1**	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . Evaluation of the Simplified Head Assembly	0	2	
2 . Evaluation for the insertion of up to 8 NGF LUAs	0	3	
C. 2009 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	**PCT =** 1618		

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

References:

1 . A-PV-FE-0149, Rev. 001, "Palo Verde Units 1, 2, and 3 S2M Bounding SBLOCA ECCS Performance Analysis," March 2002.

2 . CVER-09-25, "Interim Evaluation of the Effects of SHA Implementation on PVNGS Units 1, 2, and 3 ECCS Performance," April 2009.

3 . WCAP-17188-P, Rev. 1, "Palo Verde NGF LUA Engineering Report," April 2010.

Notes:

None