



JAMES R. MORRIS
Vice President

Catawba Nuclear Station
4800 Concord Rd. / CNO1VP
York, SC 29745-9635

803 831 4251
803 831 3221 fax

November 20, 2007

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

Subject: Duke Power Company LLC d/b/a Duke Energy
Carolinas, LLC (Duke)

Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414

McGuire Nuclear Station, Units 1 and 2
Docket Numbers 50-369 and 50-370

Oconee Nuclear Station, Units 1, 2, and 3
Docket Numbers 50-269, 50-270, and 50-287

Evaluation Results Confirming Existing Boron
Precipitation Analyses of Record Have Sufficient
Margin and Remain in Compliance with the
Regulations and Plant Design Basis

Reference: Letter from Duke to NRC, same subject, dated
January 8, 2007

The reference letter constituted a response to concerns associated with post-LOCA long-term cooling models, specifically those dealing with precluding boron precipitation.

In response to the reference letter, the NRC sent a Request for Additional Information (RAI). The RAI consisted of nine questions. The purpose of this letter is to respond to RAI Question 1. The responses to the remaining questions will be forwarded via separate correspondence.

A001
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November 20, 2007

The complete response to RAI Question 1 consists of information generated by Duke, as well as information generated by third parties. These parties include Babcock & Wilcox Canada Ltd., Areva NP Inc., BWXT Services, Inc., and Westinghouse Electric Company LLC. The information generated by Duke and Babcock & Wilcox Canada Ltd. is not considered proprietary. Portions of the information generated by Areva NP Inc., BWXT Services, Inc., and Westinghouse Electric Company LLC are considered proprietary, and are thereby supported by affidavits signed by the owners of the information. The affidavits set forth the basis on which the information may be withheld from public disclosure by the Commission and address with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390.

Accordingly, it is respectfully requested that the information that is proprietary be withheld from public disclosure in accordance with 10 CFR 2.390. This letter transmits proprietary and non-proprietary versions of the requested information.

There are no regulatory commitments contained in this letter or its attachments.

If there are any questions concerning this material, please contact L.J. Rudy at (803) 831-3084.

Very truly yours,

JW Putesa for

James R. Morris

LJR/s

Attachments

U.S. Nuclear Regulatory Commission

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xc (with attachments):

W.D. Travers, Administrator, Region II
U.S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, GA 30303-8931

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McGuire)
U.S. Nuclear Regulatory Commission
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Rockville, MD 20852-2738

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A.T. Sabisch, NRC Senior Resident Inspector
Catawba Nuclear Station

J.B. Brady, NRC Senior Resident Inspector
McGuire Nuclear Station

D.W. Rich, NRC Senior Resident Inspector
Oconee Nuclear Station

U.S. Nuclear Regulatory Commission

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bxc (with attachments):

R.D. Hart

L.J. Rudy

K.L. Ashe

K.L. Crane

B.G. Davenport

J.E. Smith

R.L. Gill, Jr.

T.C. Geer

G.B. Swindlehurst

H.D. Brewer

S.B. Thomas

R.C. Harvey

NCMPA-1

NCEMC

PMPA

SREC

Catawba Document Control File 801.01

McGuire Document Control

Oconee Document Control

Catawba RGC Date File

ELL-EC050

DUKE RESPONSES TO REQUEST FOR ADDITIONAL INFORMATION ON
DUKE JUSTIFICATION OF CURRENT OPERATION FOR POST-LOCA BORIC ACID
PRECIPITATION ISSUES SUBMITTED ON JANUARY 8, 2007

The NRC staff generated nine questions as part of a Request for Additional Information (RAI) in response to Reference 1. Duke submits the following response to Question #1 of the RAI. Questions 2 through 9 will be answered in a future response. For convenience, Question #1 of the RAI is repeated below.

1. Please provide the following information for the Catawba, McGuire, and Oconee NSSS's:

- a. Volume of the lower plenum, core and upper plenum below the bottom elevation of the hot leg, each identified separately.
- b. Loop friction and geometry pressure losses from the core exit through the steam generators to the inlet nozzle of the reactor vessel. Also, provide the locked rotor RCP k-factor. Please provide the mass flow rates, flow areas, k-factors, and coolant temperatures for the pressure losses provided (upper plenum, hot legs, SGs, suction legs, RCPs, and discharge legs). Please include the reduced SG flow areas due to plugged tubes. Please also provide the loss from each of the intact cold legs through the annulus to a single broken cold leg.
- c. Capacity and boron concentration of the RWST.
- d. Capacity of the condensate storage tank.
- e. Boric acid concentration vs. time for the limiting large break.
- f. Flushing flow rate at the time of switch to simultaneous injection.
- g. HPSI runout flow rate.

Response: The requested information is provided in the remainder of this attachment and in the attachments that follow.

Reference

Letter from J.R. Morris (Duke) to the USNRC dated January 8, 2007, "Evaluation Results Confirming Existing Boron Precipitation Analyses of Record Have Sufficient Margin and Remain in Compliance with the Regulations and Plant Design Basis."

Attachment 1

Information Generated by Duke in Response to RAI Question 1
(Non-Proprietary)

Duke Non-Proprietary Response to RAI#1 on Post-LOCA Boron Precipitation Issues

A. Volume of the lower plenum, core, and upper plenum below the bottom elevation of the hot leg.						
		CNS	MNS	ONS		
	Lower Plenum Volume (ft ³)	[]	[]	[]		
	Core Volume (ft ³)	[]	[]	[]		
	Upper Plenum Volume (ft ³)	[]	[]	[]		
B. Loop friction and geometry pressure losses from the core exit through the SG to the inlet nozzle of the RX Vessel.						
Provide mass flow rates, flow areas, k-factors, and coolant temperatures as well as any reduced SG flow areas due to plugged tubes.						
Provide the loss from each of the intact cold legs through the annulus to a single broken cold leg.						
K factors can be calculated from data below. Duke calculated K factors are specific to Duke nodal dimensions in RETRAN/RELAP.						
		CNS - 1	CNS - 2	MNS	ONS	
Fluid	Mass Flow Rate (lbm/s)	41,108	41,108	41,108	40,932	
Conditions	Hot Leg Temperature (deg F)	615.4	615.4	615.4	601.4	
	Cold Leg Temperature (deg F)	558.8	558.8	558.8	556.6	
	System Operating Pressure (psia)	2250	2250	2250	2170	
	Programmed Average Temperature (deg F)	585.1	587.5	585.1	579	
Upper Plenum	Flow Area based on core exit (ft2)	[]	[]	[]	[]	
	Flow Area based on center x-section (ft2)	[]	[]	[]	[]	
	Top Nozzle Pressure Drop (psi)	[]	[]	[]	[]	
	Upper Core Plate Pressure Drop (psi)	[]	[]	[]	[]	
	Outlet Nozzle Pressure Drop (psi)	[]	[]	[]	[]	
Hot Legs +	Flow Area (ft2)	[]	[]	[]	[]	
	Piping Losses (psi)	[]	[]	[]	[]	
SGs +	Flow Area (ft2)	13.35	[]	13.35	26.02	
	Reduced Flow Area due to Plugging (ft2) #	12.68	[]	12.68	24.72	
	Inlet Nozzle Pressure Drop (psi)	3.71	[]	3.71	0.85	
	Tube Entrance Pressure Drop (psi)	0.543	[]	0.543	2.54	
	Tube Friction Loss (psi)	27.32	[]	27.32	24.08	
	Tube Exit Pressure Drop (psi)	0.667	[]	0.667	0.6	
	Outlet Nozzle Pressure Drop (psi)	0.76	[]	0.76	0.1	
Suction Legs +	Flow Area (ft2)	[]	[]	[]	[]	
	Piping Losses (psi)	[]	[]	[]	[]	
RCPs +	Flow Area (ft2)	[]	[]	[]	[]	
	Pump Wier Gate Pressure Drop (psi)	[]	[]	[]	[]	
	Pump Developed Head (psi) *	[]	[]	[]	[]	
	Locked Rotor K-factor **	[]	[]	[]	[]	
Discharge Legs +	Flow Area (ft2)	[]	[]	[]	[]	
	Piping Losses (psi)	[]	[]	[]	[]	
	Inlet Nozzle Pressure Drop (psi)	[]	[]	[]	[]	
Downcomer and Downcomer Exit Pressure Drops (psi)						
		[]	[]	[]	[]	
* pump developed head is listed as a negative value since it is an increase in pressure						
** reverse loss coefficients are listed for the locked rotor K-factor						
+ per loop values are shown for these parameters						
# reduced flow areas assume 10% SGTP for CNS-2 and 5% for all other units, none of which are actual values						
C. Capacity and max boron concentration in the RWST						
		CNS	MNS	ONS		
	RWST Capacity (gal for M/C, ft3 for ONS) *	382,745	369,853	51,150		
	boron concentration (ppm)	3075	2875	3000		
* capacity listed in cubic feet for the BWST at Oconee						

Duke Non-Proprietary Response to RAI#1 on Post-LOCA Boron Precipitation Issues

D. Condensate Storage Capacity					
		CNS	MNS	ONS	
	Required Capacity (gal)	225,000	300,000	155,000	
E. Boric Acid Concentration vs. Time for the Limiting Large Break					
		CNS	MNS	ONS	
Time (hr)	Boron Mass (lbm)	Time (hr)	Boron Mass (lbm)	Time (hr)	Core Boron (ppm)
0.08	265	0.08	265	0	4000
0.17	326	0.17	325	1	4315
0.25	380	0.25	379	3	7344
0.33	429	0.33	429	5	10823
0.42	475	0.42	475	7	13964
0.5	519	0.5	518	9	16886
0.58	560	0.58	559	11	12454
0.67	599	0.67	598	13	9954
0.75	636	0.75	635	15	8520
0.83	673	0.83	671	17	7675
0.92	707	0.92	706		
1	741	1	740		
1.08	774	1.08	772		
1.17	806	1.17	804		
1.25	837	1.25	835		
1.33	867	1.33	865		
1.42	897	1.42	895		
1.5	926	1.5	924		
1.58	955	1.58	953		
1.67	983	1.67	981		
1.75	1011	1.75	1008		
1.83	1038	1.83	1035		
1.92	1065	1.92	1062		
2	1092	2	1088		
2.5	1244	2.5	1240		
3	1390	3	1386		
3.5	1532	3.5	1526		
4	1667	4	1661		
4.5	1797	4.5	1790		
5	1922	5	1914		
5.5	2044	5.5	2035		
6	2162	6	2152		
6.5	2277	6.5	2266		
7	2388	7	2376		
7.5	2497	7.5	2484		
8	2604	8	2590		
8.5	2708	8.5	2693		
9	2810	9	2794		
Limit =	2188 lbm for MNS and CNS (corresponds to 23.53 %)			Limit =	41,130 ppmB (corresponds to 23.53 %)
F. Flushing flow rate at the time of switch to simultaneous injection (MNS/CNS), or when opening decay heat drop line (ONS)					
		CNS	MNS	ONS	
	Flushing Flow Rate (gpm)	564	564	40*	
	* For Oconee, core flushing is provided initially through the reactor vessel vent valves (RVVVs)				
G. HPSI runout flow rate					
		CNS	MNS	ONS	
	IHSI (or SI) flow rate (gpm)	675	675		
	HHSI (or CCP) flow rate (gpm)	560	560		
	HPI flow rate (gpm)			525	

Attachment 2

Information Generated by Babcock & Wilcox Canada Ltd. in
Response to RAI Question 1
(Non-Proprietary)



Babcock & Wilcox Canada

a subsidiary of The Babcock & Wilcox Company, a McDermott company

581 Coronation Boulevard • Cambridge, Ontario N1R 5V3 CANADA • (519) 621-2130 • www.babcock.com

September 6, 2007

Scott B. Thomas
P.O. Box 1006
Mail Code: EC08G
Duke Energy Corp.
Charlotte, NC 28201-1006

Dear Scott

Re: Duke pressure drop information to be disclosed by NRC

BWC understands that the NRC has requested primary side pressure drop information for the Duke reactors, which includes the BWC manufactured steam generators at McGuire Units 1 and 2, Catawba Unit 1, and Oconee Units 1, 2, and 3. The purpose of this letter is to provide written confirmation that BWC does not consider the following pressure drop information generated by Duke RELAP/RETRAN accident analysis methods (the "Duke Data") as BWC proprietary information:

	MNS & CNS1	Oconee
SGs Flow Area (ft2)	13.35	26.02
Reduced Flow Area due to Plugging (ft2)	12.68	24.72
Inlet Nozzle Pressure Drop (psi)	3.71	0.85
Tube Entrance Pressure Drop (psi)	0.543	2.54
Tube Friction Loss (psi)	27.32	24.08
Tube Exit Pressure Drop (psi)	0.667	0.6
Outlet Nozzle Pressure Drop (psi)	0.76	0.1

Although Duke has indicated that the above Duke data is based on BWC calculation file information (component pressure drop and dimensional data), BWC understands that the final Duke calculated values are different compared to the values calculated in BWC calculation files using first principles. BWC understands that Duke has indicated that this is due to the RETRAN/RELAP initialization process and other adjustments necessary to match a reference set of fluid conditions. While BWC agrees that these Duke calculated values are not BWC proprietary, BWC and Duke acknowledge and agree that BWC takes no responsibility for the accuracy of this information.

Yours truly
Babcock & Wilcox Canada Ltd.

Doug Lee,
Manger, Nuclear Engineering

Acknowledged and agreed this ____ day of September, 2007

Duke Power, a division of Duke Energy Corporation

Attachment 3

Information Generated by Areva NP Inc. in Response to RAI
Question 1, Including Affidavit
(Proprietary and Non-Proprietary)

INFORMATION NON-PROPRIETARY TO AREVA NP

A. Volume of the lower plenum, core, and upper plenum below the bottom elevation of the hot leg.					
		CNS	MNS	ONS	
	Lower Plenum Volume (ft ³)				
	Core Volume (ft ³)			[]	
	Upper Plenum Volume (ft ³)				
B. Loop friction and geometry pressure losses from the core exit through the SG to the inlet nozzle of the RX Vessel.					
Provide mass flow rates, flow areas, k-factors, and coolant temperatures as well as any reduced SG flow areas due to plugged tubes.					
Provide the loss from each of the intact cold legs through the annulus to a single broken cold leg.					
K factors can be calculated from data below. Duke calculated K factors are specific to Duke nodal dimensions in RETRAN/RELAP.					
		CNS -1	CNS - 2	MNS	ONS
Fluid	Mass Flow Rate (lbm/s)				
Conditions	Hot Leg Temperature (deg F)				
	Cold Leg Temperature (deg F)				
	System Operating Pressure (psia)				
	Programmed Average Temperature (deg F)				
Upper Plenum	Flow Area based on core exit (ft2)				[]
	Flow Area based on center x-section (ft2)				
	Top Nozzle Pressure Drop (psi)				
	Upper Core Plate Pressure Drop (psi)				
	Outlet Nozzle Pressure Drop (psi)				
Hot Legs +	Flow Area (ft2)				
	Piping Losses (psi)				
SGs +	Flow Area (ft2)				
	Reduced Flow Area due to Plugging (ft2)				
	Inlet Nozzle Pressure Drop (psi)				
	Tube Entrance Pressure Drop (psi)				
	Tube Friction Loss (psi)				
	Tube Exit Pressure Drop (psi)				
	Outlet Nozzle Pressure Drop (psi)				
Suction Legs +	Flow Area (ft2)				
	Piping Losses (psi)				
RCPs +	Flow Area (ft2)				
	Pump Wier Gate Pressure Drop (psi)				
	Pump Developed Head (psi) *				
	Locked Rotor K-factor **				
Discharge Legs +	Flow Area (ft2)				
	Piping Losses (psi)				
	Inlet Nozzle Pressure Drop (psi)				
Downcomer and Downcomer Exit Pressure Drops (psi)					
* pump developed head is listed as a negative value since it is an increase in pressure					
** reverse loss coefficients are listed for the locked rotor K-factor					
+ per loop values are shown for these parameters					

REFER TO ATTACHED COPY OF AFFIDAVIT SIGNED BY AREVA NP

accordance with 10 CFR 2.390. The information for which withholding from disclosure is requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information."

6. The following criteria are customarily applied by AREVA NP to determine whether information should be classified as proprietary:

- (a) The information reveals details of AREVA NP's research and development plans and programs or their results.
- (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.
- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for AREVA NP.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for AREVA NP in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by AREVA NP, would be helpful to competitors to AREVA NP, and would likely cause substantial harm to the competitive position of AREVA NP.

The information in the Document is considered proprietary for the reasons set forth in paragraphs 6(b) and 6(c) above.

7. In accordance with AREVA NP's policies governing the protection and control of information, proprietary information contained in this Document have been made available, on a limited basis, to others outside AREVA NP only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. AREVA NP policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to be 'A. R. A.', written over a horizontal line.

SUBSCRIBED before me this 7th
day of September, 2007.

A handwritten signature in black ink, appearing to be 'S. McFaden', written over a horizontal line.

Sherry L. McFaden
NOTARY PUBLIC, COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES: 10/31/10
Reg. # 7079129



Attachment 4

Information Generated by BWXT Services, Inc. in Response to
RAI Question 1, Including Affidavit
(Proprietary and Non-Proprietary)

INFORMATION NON-PROPRIETARY TO BWXT

A. Volume of the lower plenum, core, and upper plenum below the bottom elevation of the hot leg.					
		CNS	MNS	ONS	
	Lower Plenum Volume (ft ³)			[]	
	Core Volume (ft ³)				
	Upper Plenum Volume (ft ³)			[] ^a	
	^a taken to bottom of cold legs				
B. Loop friction and geometry pressure losses from the core exit through the SG to the inlet nozzle of the RX Vessel.					
Provide mass flow rates, flow areas, k-factors, and coolant temperatures as well as any reduced SG flow areas due to plugged tubes.					
Provide the loss from each of the intact cold legs through the annulus to a single broken cold leg.					
K factors can be calculated from data below. Duke calculated K factors are specific to Duke nodal dimensions in RETRAN/RELAP.					
		CNS -1	CNS - 2	MNS	ONS
Fluid	Mass Flow Rate (lbm/s)				
Conditions	Hot Leg Temperature (deg F)				
	Cold Leg Temperature (deg F)				
	System Operating Pressure (psia)				
	Programmed Average Temperature (deg F)				
Upper Plenum	Flow Area based on core exit (ft ²)				
	Flow Area based on center x-section (ft ²)				[]
	Top Nozzle Pressure Drop (psi)				incl w/core plate
	Upper Core Plate Pressure Drop (psi)				[]
	Outlet Nozzle Pressure Drop (psi)				[]
Hot Legs ⁺	Flow Area (ft ²)				[]
	Piping Losses (psi)				[]
SGs ⁺	Flow Area (ft ²)				
	Reduced Flow Area due to Plugging (ft ²)				
	Inlet Nozzle Pressure Drop (psi)				
	Tube Entrance Pressure Drop (psi)				
	Tube Friction Loss (psi)				
	Tube Exit Pressure Drop (psi)				
	Outlet Nozzle Pressure Drop (psi)				
Suction Legs ⁺	Flow Area (ft ²)				[]
	Piping Losses (psi)				[]
RCPS ⁺	Flow Area (ft ²)				[]
	Pump Wier Gate Pressure Drop (psi)				incl w/pump head
	Pump Developed Head (psi) *				[]
	Locked Rotor K-factor **				[]
Discharge Legs ⁺	Flow Area (ft ²)				[]
	Piping Losses (psi)				[]
	Inlet Nozzle Pressure Drop (psi)				[]
Downcomer and Downcomer Exit Pressure Drops (psi)					[] [^]
* pump developed head is listed as a negative value since it is an increase in pressure					
** reverse loss coefficients are listed for the locked rotor K-factor					
⁺ per loop values are shown for these parameters					
[^] Downcomer exit pressure drop is included in the lower internals pressure drop value, which is [] psi for ONS.					

AFFIDAVIT

STATE OF VIRGINIA)
)
COUNTY OF CAMPBELL)

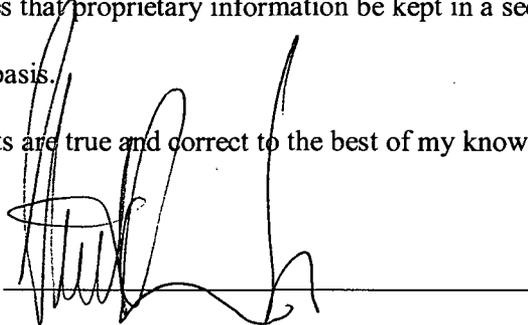
1. My name is Robert Cochran and I am President of BWXT Services, Inc. (BWXS) and as such I am authorized to execute this Affidavit.
2. I am familiar with the criteria applied by BWXT Services, Inc. and its parents (the "Company") to determine whether certain information is proprietary.
3. I am familiar with the Company information contained in the report entitled "REQUEST FOR ADDITIONAL INFORMATION DUKE RESPONSE TO THE NRC REQUEST FOR JUSTIFICATION OF CURRENT OPERATION FOR POST-LOCA BORIC ACID PRECIPITATION ISSUES (the "Report"). The Report contains information of a proprietary and confidential nature and is of the type customarily held in confidence by the Company and is not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in the Report as proprietary and confidential.
4. This Report will be made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in the Report be withheld from public disclosure.
5. The following criteria are customarily applied by Company to determine whether information should be classified as proprietary:
 - (a) The information reveals details of research and development programs or their results.
 - (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.

- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for the Company.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for the Company in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by the Company, would be helpful to competitors, and release would likely cause substantial harm to the competitive position of the Company.

6. In accordance with the Company's policies governing the protection and control of information, proprietary information contained in the Report has been made available, on a limited basis, to others outside the Company only as required and under suitable agreement providing for nondisclosure and limited use of the information.

7. Company policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

8. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

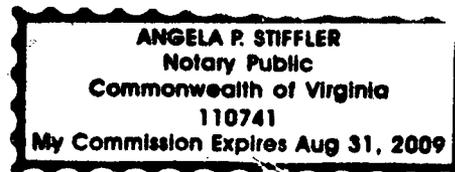


SUBSCRIBED before me this 11th

Day of September, 2007.

Angela P. Stiffler

Angela Stiffler
NOTARY PUBLIC, STATE OF VIRGINIA
MY COMMISSION EXPIRES: 08/31/2009



Attachment 5

Information Generated by Westinghouse Electric Company LLC
in Response to RAI Question 1, Including Affidavit
(Proprietary and Non-Proprietary)

**Response to NRC Request for Additional Information on
Post-LOCA Boron Precipitation**

Westinghouse Electric Company LLC
P.O. Box 355
Pittsburgh, PA 15230-0355

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Westinghouse Non-Proprietary Class 3

**Response to NRC Request for Additional Information on
Post-LOCA Boron Precipitation**

A. Volume of the lower plenum, core, and upper plenum below the bottom elevation of the hot leg.					
		CNS	MNS	ONS	
	Lower Plenum Volume (ft ³)	[] ^{a,c}	[] ^{a,c}		
	Core Volume (ft ³)	[] ^{a,c}	[] ^{a,c}		
	Upper Plenum Volume (ft ³)	[] ^{a,c}	[] ^{a,c}		
B. Loop friction and geometry pressure losses from the core exit through the SG to the inlet nozzle of the RX Vessel.					
Provide mass flow rates, flow areas, k-factors, and coolant temperatures as well as any reduced SG flow areas due to plugged tubes.					
Provide the loss from each of the intact cold legs through the annulus to a single broken cold leg.					
K factors can be calculated from data below. Duke calculated K factors are specific to Duke nodal dimensions in RETRAN/RELAP.					
		CNS - 1	CNS - 2	MNS	ONS
Fluid	Mass Flow Rate (lbm/s)				
Conditions	Hot Leg Temperature (deg F)				
	Cold Leg Temperature (deg F)				
	System Operating Pressure (psia)				
	Programmed Average Temperature (deg F)				
Upper	Flow Area based on core exit (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Plenum	Flow Area based on center x-section (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Top Nozzle Pressure Drop (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Upper Core Plate Pressure Drop (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Outlet Nozzle Pressure Drop (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Hot	Flow Area (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Legs ⁺	Piping Losses (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
SGs ⁺	Flow Area (ft ²)		[] ^{a,c}		
	Reduced Flow Area due to Plugging (ft ²) ⁺		[] ^{a,c}		
	Inlet Nozzle Pressure Drop (psi)		[] ^{a,c}		
	Tube Entrance Pressure Drop (psi)		[] ^{a,c}		
	Tube Friction Loss (psi)		[] ^{a,c}		
	Tube Exit Pressure Drop (psi)		[] ^{a,c}		
	Outlet Nozzle Pressure Drop (psi)		[] ^{a,c}		
Suction	Flow Area (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Legs ⁺	Piping Losses (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
RCPs ⁺	Flow Area (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Pump Wier Gate Pressure Drop (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Pump Developed Head (psi) *	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Locked Rotor K-factor **	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Discharge	Flow Area (ft ²)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Legs ⁺	Piping Losses (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
	Inlet Nozzle Pressure Drop (psi)	[] ^{a,c}	[] ^{a,c}	[] ^{a,c}	
Downcomer and Downcomer Exit Pressure Drops (psi)		[] ^{a,c} and [] ^{a,c}	[] ^{a,c} and [] ^{a,c}	[] ^{a,c} and [] ^{a,c}	
* pump developed head is listed as a negative value since it is an increase in pressure					
** reverse loss coefficients are listed for the locked rotor K-factor					
⁺ per loop values are shown for these parameters					



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Proj letter ref DPC-07-66 P-Attachment

Our ref: CAW-07-2323

September 20, 2007

**APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: "Response to NRC Request for Additional Information on Post-LOCA Boron Precipitation"

The proprietary information for which withholding is being requested is further identified in Affidavit CAW-07-2323 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Duke Energy.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-07-2323 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read "J. A. Gresham".

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Jon Thompson (NRC O-7E1A)

Enclosures

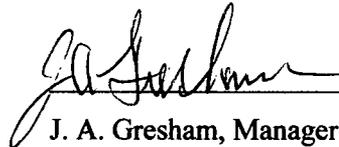
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

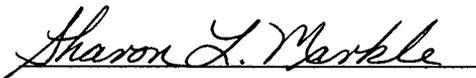
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 20th day of September, 2007



Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Sharon L. Markle, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Jan. 29, 2011
Member, Pennsylvania Association of Notaries

- (1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's

competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
 - (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
 - (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in "brackets" in "Response to NRC Request for Additional Information on Post-LOCA Boron Precipitation" (Proprietary) being transmitted by Duke Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information in "Response to NRC Request for Additional Information on Post-LOCA Boron Precipitation" is that associated with Duke Energy's RAI responses on post-LOCA boron precipitation.

This information is part of that which will enable Westinghouse to:

- (a) Assist the customer in responding to RAIs.

Further this information has substantial commercial value as follows:

- (a) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse
- (b) The information consists of supporting data, including test data, relative to a process (or component, structure, tool, method etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar calculations and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

Proprietary Information Notice

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

Copyright Notice

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.