

September 12, 2003

MEMORANDUM TO: Laura A. Dudes, Section Chief  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs, NRR

FROM: Joseph Colaccino, Senior Project Manager /RA/  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs, NRR

SUBJECT: JULY 30, 2003, AP1000 TELEPHONE CONFERENCE CALL SUMMARY

On Wednesday, July 30, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and Nuclear Regulatory Commission (NRC) staff to discuss AP1000 draft safety evaluation report open items (DSER OIs) 3.6.3.4-1 and 3.6.3.4-2. The call participants are listed in Attachment 1. Talking points for the conference call were provided to Westinghouse via electronic mail on July 29, 2003. A copy of that E-mail is included as Attachment 2. A summary of the conference call is included below.

With regard to Section A of Attachment 2 (leak-before-break (LBB) bounding analysis curve (BAC) approach), the NRC staff presented an alternative approach to that described in the amended potential OI letter dated June 16, 2003 (ADAMS Accession Number ML031671368) for DSER OI 3.6.3.4-2. This approach includes NRC staff review of the results of the direct vessel injection line 'A' analysis. In addition, the NRC staff would review, if necessary, a qualitative assessment of additional limiting subsystems to assess that there is reasonable assurance that the AP1000 LBB final analysis results for these subsystems will be within their respective BACs. The NRC staff emphasized that they were interested in a qualitative comparison between the AP1000 LBB inputs and the AP600 LBB inputs that would impact the AP1000 piping stresses in the LBB systems.

The NRC staff also proposed a meeting with Westinghouse once Westinghouse develops its analysis approach. Westinghouse proposed to perform a single qualitative LBB subsystem analysis and discuss this with the NRC staff prior to the proposed meeting. The NRC staff agreed with this approach and stated that Westinghouse could submit to the NRC this single qualitative LBB analysis as a partial response to OI 3.6.3.4-2.

With regard to Section B of Attachment 2 (PWSCC - primary water stress corrosion cracking), Westinghouse stated that they will perform the sensitivity study on available LBB margins using a stress corrosion cracking flaw morphology as a surrogate for PWSCC as discussed in Item 1. Westinghouse also stated that they will respond to OI 3.6.3.4-1 as discussed in Item 2 of Attachment 2.

Docket No. 52-006

Attachments: As stated

cc w/atts: See next page

September 12, 2003

MEMORANDUM TO: Laura A. Dudes, Section Chief  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs, NRR

FROM: Joseph Colaccino, Senior Project Manager /RA/  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs, NRR

SUBJECT: JULY 30, 2003, AP1000 TELEPHONE CONFERENCE CALL SUMMARY

On Wednesday, July 30, 2003, a telephone conference call was held with Westinghouse Electric Company (Westinghouse) representatives and Nuclear Regulatory Commission (NRC) staff to discuss AP1000 draft safety evaluation report open items (DSER OIs) 3.6.3.4-1 and 3.6.3.4-2. The call participants are listed in Attachment 1. Talking points for the conference call were provided to Westinghouse via electronic mail on July 29, 2003. A copy of that E-mail is included as Attachment 2. A summary of the conference call is included below.

With regard to Section A of Attachment 2 (leak-before-break (LBB) bounding analysis curve (BAC) approach), the NRC staff presented an alternative approach to that described in the amended potential OI letter dated June 16, 2003 (ADAMS Accession Number ML031671368) for DSER OI 3.6.3.4-2. This approach includes NRC staff review of the results of the direct vessel injection line 'A' analysis. In addition, the NRC staff would review, if necessary, a qualitative assessment of additional limiting subsystems to assess that there is reasonable assurance that the AP1000 LBB final analysis results for these subsystems will be within their respective BACs. The NRC staff emphasized that they were interested in a qualitative comparison between the AP1000 LBB inputs and the AP600 LBB inputs that would impact the AP1000 piping stresses in the LBB systems.

The NRC staff also proposed a meeting with Westinghouse once Westinghouse develops its analysis approach. Westinghouse proposed to perform a single qualitative LBB subsystem analysis and discuss this with the NRC staff prior to the proposed meeting. The NRC staff agreed with this approach and stated that Westinghouse could submit to the NRC this single qualitative LBB analysis as a partial response to OI 3.6.3.4-2.

With regard to Section B of Attachment 2 (PWSCC - primary water stress corrosion cracking), Westinghouse stated that they will perform the sensitivity study on available LBB margins using a stress corrosion cracking flaw morphology as a surrogate for PWSCC as discussed in Item 1. Westinghouse also stated that they will respond to OI 3.6.3.4-1 as discussed in Item 2 of Attachment 2.

Docket No. 52-006

Attachments: As stated

cc w/atts: See next page

<u>Distribution:</u>	<u>E-mail</u>	
Hard Copy	PUBLIC	RWeisman, OGC
RNRP R/F	DMatthews	PSekerak
JLyons	JMoore	YSheng
JSegala		
JStarefos		

ACCESSION NUMBER: ML032120371 \*See previous concurrence

OFFICE	RNRP/PM	EMCB*	EMEB*	RNRP/SC*
NAME	JColaccino	ESullivan	DTerao	LDudes
DATE	9/12/03	9/2/03	9/3/03	9/11/03

OFFICIAL RECORD COPY

JULY 30, 2003  
TELEPHONE CONFERENCE CALLS SUMMARY  
LIST OF PARTICIPANTS

Nuclear Regulatory Commission

E. Sullivan  
D. Terao  
Y. Sheng  
J. Starefos  
J. Colaccino

Westinghouse

M. Corletti  
D. Bhowmick  
E. Cummins  
R. Orr  
D. Wiseman  
W. Bamford

NUCLEAR REGULATORY COMMISSION STAFF  
TALKING POINTS THAT WERE SENT TO WESTINGHOUSE TO  
FACILITATE DISCUSSIONS OF OPEN ITEMS 3.6.3.4-1 AND 3.6.3.4-2  
FOR CALL HELD ON JULY 30, 2003

E-mailed July 29, 2003:

**DISCUSSION POINTS TO RESOLVE AP1000 LEAK BEFORE BREAK (LBB) ISSUES**

**A. BAC [Bounding Analysis Curve] Approach**

Objective: In the amended open items letter on leak before break (LBB), the staff proposed that Westinghouse perform preliminary LBB analyses of several subsystems. Westinghouse may be able to use the following alternative approach to assess whether combined license (COL) construction will conform to the design with respect to LBB.

1. Finalize the AP1000 piping stress analysis for the direct vessel injection line A (DVI-A) subsystem and submit a summary of the analysis performed and the results for staff review.

Include in the submittal the technical basis for the determination that the DVI-A subsystem represents a limiting analysis for AP1000 LBB. By limiting in this context, we mean that the analysis a) is difficult and challenging to demonstrate that it satisfies LBB margins and b) bounds many other subsystems with respect to demonstrating LBB margins. If Westinghouse can technically demonstrate that the DVI-A analysis is bounding with respect to LBB margins for all other subsystems, no further assessment should be necessary.

2. If it cannot be technically demonstrated that the DVI-A analysis bounds all other subsystems with respect to LBB margins, identify additional limiting subsystems for qualitative assessment (per the discussion in the next paragraph). Provide the basis for why these subsystems would be expected to be a sufficient set for this purpose. The basis for choosing these additional limiting subsystems should discuss each of the systems, although not necessarily to the same level of detail as discuss in the paragraph below. We have reviewed the table attached to Westinghouse's August 5, 2002, letter on LBB and have concluded that it does not contain an adequate discussion of the technical basis needed to assess whether COL construction will conform to the design with respect to LBB.

For each of these additional limiting analyses, Westinghouse should perform a qualitative assessment to demonstrate that there is reasonable assurance that the AP1000 results for these subsystems will be within their respective BACs. The demonstration for each subsystem may be based on previous AP600 analysis, models, and results but needs to provide a sound technical basis for concluding the AP1000 BACs will be satisfied given potential changes in geometry (e.g., pipe sizes, elevations), seismic loads, and other loads and factors, as applicable. Any reference to AP600 analyses will have to be accompanied by a summary of the AP600 analyses performed

and the results obtained. If Westinghouse relies on AP600 analyses, they should be explicitly referenced so that the staff can make them available on the AP1000 docket.

B. PWSCC [Primary Water Stress Corrosion Cracking]

1. Sensitivity Study

Westinghouse needs to perform the requested sensitivity study on available LBB margins using an SCC flaw morphology, such as transgranular stress corrosion cracking (TGSCC), as a surrogate for PWSCC. This analysis should be performed for the DVI-A system already analyzed.

2. Inspections

Westinghouse needs to revise the wording in its letter dated July 1, 2003, in response to Open Item 3.6.3.4-1 to more consistently reflect the wording of the draft safety evaluation report (DSER) Open Item.

AP 1000

cc:

Mr. W. Edward Cummins  
AP600 and AP1000 Projects  
Westinghouse Electric Company  
P.O. Box 355  
Pittsburgh, PA 15230-0355

Mr. H. A. Sepp  
Westinghouse Electric Company  
P.O. Box 355  
Pittsburgh, PA 15230

Lynn Connor  
Doc-Search Associates  
2211 SW 1<sup>ST</sup> Ave - #1502  
Portland, OR 97201

Barton Z. Cowan, Esq.  
Eckert Seamans Cherin & Mellott, LLC  
600 Grant Street 44<sup>th</sup> Floor  
Pittsburgh, PA 15219

Mr. Ed Rodwell, Manager  
Advanced Nuclear Plants' Systems  
Electric Power Research Institute  
3412 Hillview Avenue  
Palo Alto, CA 94304-1395

Charles Brinkman, Director  
Washington Operations  
Westinghouse Electric Company  
12300 Twinbrook Parkway, Suite 330  
Rockville, MD 20852

Mr. R. Simard  
Nuclear Energy Institute  
1776 I Street NW  
Suite 400  
Washington, DC 20006

Mr. Thomas P. Miller  
U.S. Department of Energy  
Headquarters - Germantown  
19901 Germantown Road  
Germantown, MD 20874-1290

Mr. David Lochbaum  
Nuclear Safety Engineer  
Union of Concerned Scientists  
1707 H Street NW, Suite 600  
Washington, DC 20006-3919

Mr. Paul Gunter  
Nuclear Information & Resource Service  
1424 16th Street, NW., Suite 404  
Washington, DC 20036

Mr. Tom Clements  
6703 Guide Avenue  
Takoma Park, MD 20912

Mr. James Riccio  
Greenpeace  
702 H Street, NW, Suite 300  
Washington, DC 20001

Mr. James F. Mallay, Director  
Regulatory Affairs  
FRAMATOME, ANP  
3315 Old Forest Road  
Lynchburg, VA 24501

Mr. Ed Wallace, General Manager  
Projects  
PBMR Pty LTD  
PO Box 9396  
Centurion 0046  
Republic of South Africa

Mr. Vince Langman  
Licensing Manager  
Atomic Energy of Canada Limited  
2251 Speakman Drive  
Mississauga, Ontario  
Canada L5K 1B2

Mr. Gary Wright, Manager  
Office of Nuclear Facility Safety  
Illinois Department of Nuclear Safety  
1035 Outer Park Drive  
Springfield, IL 62704

Dr. Gail H. Marcus  
U.S. Department of Energy  
Room 5A-143  
1000 Independence Ave., SW  
Washington, DC 20585

Mr. Paul Leventhal  
Nuclear Control Institute  
1000 Connecticut Avenue, NW  
Suite 410  
Washington, DC 20036

Mr. Jack W. Roe  
SCIENTECH, INC.  
910 Clopper Road  
Gaithersburg, MD 20878

Patricia Campbell  
Winston & Strawn  
1400 L Street, NW  
Washington, DC 20005

Mr. David Ritter  
Research Associate on Nuclear Energy  
Public Citizens Critical Mass Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003

Mr. Michael M. Corletti  
Passive Plant Projects & Development  
AP600 & AP1000 Projects  
Westinghouse Electric Company  
P. O. Box 355  
Pittsburgh, PA 15230-0355