

February 28, 2003

Mr. W. E. Cummins, Director
AP600 & AP1000 Projects
Westinghouse Electric Company
Post Office Box 355
Pittsburgh, Pennsylvania 15230-0355

SUBJECT: AP1000 - LIST OF UNRESOLVED REQUESTS FOR ADDITIONAL
INFORMATION (RAIS) (TAC NO. MB5491)

Dear Mr. Cummins:

By letter dated March 28, 2002 (ADAMS Accession No. ML020910357), you submitted an application for design certification and final design approval of the AP1000 design. The Nuclear Regulatory Commission (NRC) staff documented milestones and target dates for the review of the AP1000 in a letter dated July 12, 2002 (ADAMS Accession No. ML021930037). In response to your request of August 14, 2002 (ADAMS Accession No. ML022280319), we added the milestone of informing you of those RAIs that remain unresolved as of February 28, 2003. This list is provided as Enclosure 1.

To date, the NRC staff has issued 709 RAIs as listed in Enclosure 2 and you provided your responses as listed in Enclosure 3. Shortly after receiving the first RAI responses in October 2002, the NRC staff interacted with Westinghouse Electric Company (Westinghouse) representatives regarding the efficacy of your responses in resolving the issues raised in the RAIs. These interactions have been conducted in public meetings and telephone conference calls the details of which have been documented in various meeting and call summaries. The NRC staff intends to continue these interactions with Westinghouse representatives as requested in your August 14, 2002, letter, consistent with the primary goal of issuing the draft safety evaluation report in June 2003.

In some of your RAI responses, you proposed revisions to the design control document (DCD), probabilistic risk assessment (PRA), and/or various topical reports. In its assessment of the RAI responses, the NRC staff assumed that these changes will be made as proposed. Final resolution of all RAIs is subject to verification of proper implementation of these proposed revisions by the NRC staff.

The NRC staff has not, as yet, issued RAIs regarding the security portion of the design. The NRC staff is currently reviewing the elements of the security review for plant designs that are submitted for design certification. We will issue a schedule for the security review of the AP1000, including milestones and target dates for issuance of security-related RAIs, under separate correspondence in the near future.

RAIs 440.151, 440.152, 440.154, 440.157, 440.160, 440.161, 440.162, 440.164, 440.169, 440.171, and 440.173 are designated as unresolved and addressed the issue of liquid entrainment phenomena in the upper plenum during certain accident conditions. This issue

was identified as an area that needed further review in the NRC staff's pre-application review assessment, dated March 25, 2002 (ADAMS Accession No. ML02011001). The NRC staff is preparing separate correspondence regarding these RAIs and your responses and will forward comments to you in the near future.

In response to several RAIs, you provided several topical reports for NRC staff review. Most of these reports were submitted on December 2, 2002, and, consequently, the NRC staff has not completed its review of these reports and may have additional questions regarding their contents. The following RAIs are designated as unresolved to track the review of some of these reports: (1) RAI 210.001 for WCAP-15949, "AP1000 Reactor Internals Flow-Induced Vibration Assessment Program" (ADAMS Accession No. ML023400478), (2) RAI 440.045 for WCAP-15993, "Evaluation of the AP1000 Conformance to Inter-System Loss-of-Coolant Accident Acceptance Criteria" (ADAMS Accession No. ML023400402), (3) RAI 440.108 for WCAP-15985, "AP1000 Implementation of the Regulatory Treatment of Nonsafety System Process" (ADAMS Accession No. ML023370584), and (4) 440.128 for WCAP-15992, "AP1000 Adverse System Interactions Evaluation Report" (ADAMS Accession No. ML023370619).

Please contact one of the following members of the AP1000 project management team if you have any questions or comments concerning this matter: Mr. John Segala (Lead Project Manager) at (301) 415-1858 or jps1@nrc.gov, Mr. Joseph Colaccino at (301) 415-2752 or jxc1@nrc.gov, or Ms. Joelle Starefos at (301) 415-8488 or jls1@nrc.gov.

Sincerely,

/RA/

James E. Lyons, Director
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

Docket No. 52-006

Enclosure: As stated

cc: See next page

assessment, dated March 25, 2002 (ADAMS Accession No. ML02011001). The NRC staff is preparing separate correspondence regarding these RAIs and your responses and will forward comments to you in the near future.

In response to several RAIs, you provided several topical reports for NRC staff review. Most of these reports were submitted on December 2, 2002, and, consequently, the NRC staff has not completed its review of these reports and may have additional questions regarding their contents. The following RAIs are designated as unresolved to track the review of some of these reports: (1) RAI 210.001 for WCAP-15949, "AP1000 Reactor Internals Flow-Induced Vibration Assessment Program" (ADAMS Accession No. ML023400478), (2) RAI 440.045 for WCAP-15993, "Evaluation of the AP1000 Conformance to Inter-System Loss-of-Coolant Accident Acceptance Criteria" (ADAMS Accession No. ML023400402), (3) RAI 440.108 for WCAP-15985, "AP1000 Implementation of the Regulatory Treatment of Nonsafety System Process" (ADAMS Accession No. ML023370584), and (4) 440.128 for WCAP-15992, "AP1000 Adverse System Interactions Evaluation Report" (ADAMS Accession No. ML023370619).

Please contact one of the following members of the AP1000 project management team if you have any questions or comments concerning this matter: Mr. John Segala (Lead Project Manager) at (301) 415-1858 or jps1@nrc.gov, Mr. Joseph Colaccino at (301) 415-2752 or jxc1@nrc.gov, or Ms. Joelle Starefos at (301) 415-8488 or jls1@nrc.gov.

Sincerely,

/RA/

James E. Lyons, Director
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

Docket No. 52-006

Enclosure: As stated

cc: See next page

<u>Distribution:</u>		<u>E-Mail</u>	GHolahan	AP1000SCs
Hard Copy	JLyons	SCollins	GTracy	AP1000BCs
MGamberoni	LBurkhart	RBorchardt	RBarrett	
JSegala	NRLPO R/F	ACRS	BBoger	
PUBLIC	JColaccino	OGC	WBeckner	
JStarefos		AP1000 reviewers	GTracy	

Accession No. ML030550362 *See previous concurrence

OFFICE	NRLPO/PM	DSSA/D*	NSIR/DNS/D*	DE/D(A)*	DIPM/D*
NAME	LBurkhart:cn	GHolahan	GTracy	RBarrett	BBoger
DATE	2/27/03	2/26/03	2/26/03	2/24/03	2/25/03
OFFICE	DRIP/RORP/D*	NRLPO/DD	NRLPO/D		
NAME	WBeckner	MGamberoni	JLyons		
DATE	2/25/03	2/27/03	2/27/03		

OFFICIAL RECORD COPY

LIST OF UNRESOLVED AP1000
REQUESTS FOR ADDITIONAL INFORMATION (RAIS)
AS OF FEBRUARY 28, 2003

RAI Series No.	Unresolved RAI Nos.	Total No. of RAIs Unresolved	Comments
100	3	1	
210	1, 12, 19, 21, 23, 28, 49, 50, 55	9	210.001 unresolved to cover review of WCAP-15949
220	1, 2, 3, 5, 7, 8, 9, 10, 12, 15, 18	11	
230	2, 18	2	
240	None	0	
241	1	1	
250	3	1	
251	1, 2, 4, 5, 11, 12, 21, 22, 24, 25, 26, 27, 28, 29	14	
252	1, 2, 6	3	
260	None	0	
261	10, 11	2	
280	1, 8, 11	3	
281	1	1	
410	5, 7, 9	3	
420	1, 5, 6, 7, 8, 12, 13, 29, 44, 45, 46	11	
435	None	0	
440	14, 22, 36, 37, 43, 45, 48, 49, 50, 52, 76, 77, 89, 91, 92, 97, 99, 101, 102, 106, 108, 119, 128, 151, 152, 154, 157, 160, 161, 162, 164, 169, 171, 173, 183, 184	36	440.045 unresolved to cover review of WCAP-15993, 440.108 unresolved to cover review of WCAP-15985, 440.128 unresolved to cover review of WCAP-15992
451	1, 2, 4, 6	4	

LIST OF UNRESOLVED AP1000
REQUESTS FOR ADDITIONAL INFORMATION (RAIS)
AS OF FEBRUARY 28, 2003

460	7	1	
470	2, 3, 7, 9, 10, 11, 13	7	
471	5, 9	2	
472	None	0	
480	5, 7	2	
620	1, 4, 18	3	
630	1, 2, 21, 25, 27, 28, 35, 36, 39, 42, 45, 46, 47, 50, 51, 52	16	
640	None	0	
650	1, 2, 3, 4, 5, 6	6	
720	5, 9, 10, 12, 13, 17, 21, 24, 25, 26, 27, 28, 29, 30, 33, 35, 37, 38, 39, 42, 43, 46, 48, 50, 53, 55, 56, 58, 60, 65, 70, 74, 75, 78, 79, 80, 82, 83, 84, 85, 87, 88, 89, 90, 91, 92, 95, 96, 98	49	
TOTAL		188	

CHRONOLOGICAL LIST OF AP1000
REQUEST FOR ADDITIONAL INFORMATION (RAI)
CORRESPONDENCE

RAI Letter No.	Date of issuance	ADAMS Accession No.	RAI Nos.	Quantity
1	6/26/2002	ML021780568	440.001 - 440.008	8
2	8/16/2002	ML022280379	720.001	1
3	8/27/2002	ML022390103	420.001 - 420.046, 435.001 - 435.015	61
4	9/3/2002	ML022460356	620.001 - 620.043	43
5	9/4/2002	ML022470255	210.001 - 210.057	57
6	9/5/2002, Reissued on 9/18/02	ML022480440, Reissued RAI - ML022610042	440.009 - 440.148, 720.002 - 720.026	165
7	9/19/2002	ML022620026	260.001 - 260.003, 261.001 - 261.010, 471.001 - 471.010, 472.001 - 472.003	26
8	9/19/2002	ML022620319	220.001 - 220.019, 230.001 - 230.019, 240.001 - 240.004, 241.001 - 241.003	45
9	9/24/2002	ML022620079	250.001 - 250.003, 251.001 - 251.029, 252.001 - 252.009, 281.001 - 281.003	44
10	9/25/2002	ML022620614	210.058 - 210.070, 261.011 - 261.013, 720.027 - 720.040	30
11	9/27/2002	ML022670315	440.149 - 440.182, 451.001 - 451.007, 470.001 - 470.013, 720.041 - 720.097	111

CHRONOLOGICAL LIST OF AP1000
REQUEST FOR ADDITIONAL INFORMATION (RAI)
CORRESPONDENCE

12	9/30/2002	ML022680338	280.001 - 280.011, 410.001 - 410.021, 460.001 - 460.011, 480.001 - 480.009, 640.001	53
13	9/30/2002	ML022700053	100.001 - 100.003, 630.001 - 630.053	56
NA	10/10/02	ML022820451	Revised 470.006	
NA	11/20/02	ML023090241	720.098	1
NA	1/21/03	ML030150345	650.001 - 650.006	6
NA	2/5/03	ML030340065	440.183, 440.184	2
Total RAIs Issued to date				709

LIST OF AP1000 RAI RESPONSES
PROVIDED BY WESTINGHOUSE

Date of RAI Response Letter from Westinghouse Electric Company	ADAMS Accession No.
July 24, 2002	ML022110430
September 10, 2002	ML022560265
September 12, 2002	ML022600097
October 2, 2002	ML022810450
October 4, 2002	ML022830632
October 18, 2002	ML022980577
November 1, 2002	ML023080378
November 1, 2002	ML023110249
November 8, 2002	ML023170535
November 15, 2002	ML023230385
November 26, 2002	ML023360097
December 2, 2002	ML023400215
December 2, 2002	ML023400058
January 21, 2003	ML030240161
February 14, 2003	ML030520376
February 21, 2003	ML030560120

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 1ST Ave - #1502
Portland, OR 97201

Barton Z. Cowan, Esq.
Eckert Seamans Cherin & Mellott, LLC
600 Grant Street 44th 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
Project Management
Lake Buena Vista Bldg., 3rd Floor
1267 Gordon Hood Avenue
Centurion 0046
Republic of South Africa
PO Box 9396 Centurion 0046

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. Edwin Lyman
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