



Westinghouse
Electric Corporation

Energy Systems

DCP/NRC0311
Docket No: STN-52-003

Box 355
Pittsburgh Pennsylvania 15230-0355

NTD-NRC-95-4448

Document Control Desk
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

April 28, 1995

Attention: Dennis M. Crutchfield
Associate Director for Advanced Reactors and License Renewal
Office of Nuclear Reactor Regulation

SUBJECT: Reviews of WCOBRA/TRAC Best-Estimate LOCA Analysis Methodology and AP600

Dear Mr. Crutchfield:

Thank you for your letter dated March 21, 1995 on the subject of the staff's review of the Westinghouse WCOBRA/TRAC code and Best-Estimate Large Break LOCA methodology (BELOCA) for operating plants and the AP600 program. This letter provides our response based on thorough consideration of both your letter and the RAIs on the W COBRA/TRAC (WC/T) Code Applicability Document (CAD) for AP600. These RAIs were just received informally on April 10, 1995. Our ability to work with you to resolve the CAD RAIs by May 31, 1995 was an important condition associated with the target schedule identified in your March 21st letter.

Westinghouse believes that the target schedule identified in your March 21st letter is not achievable based on your condition (c) that "Westinghouse must resolve all remaining WCOBRA/TRAC open items by the end of May 1995" and that "This would include resolution of AP600 WCOBRA/TRAC applicability items in the same time frame". The recently received CAD RAIs are significant and resolution is not achievable in that time frame. However, we believe that the intent of condition (c) can be met to ensure that BELOCA licensing is consistent with operating plant and AP600 program needs. For example, some of the CAD RAIs are related to the AP600 SSAR plant model and to long term core cooling. Westinghouse believes these can be scheduled in a more appropriate time frame. The March 21st letter requirement to resolve all AP600 WC/T applicability items by May 1995 is not consistent with the existing AP600 schedule for review and approval of other AP600 accident analyses codes. The NRC's review of WC/T is well ahead of the AP600 schedule. Furthermore, Westinghouse believes that the remaining CAD RAIs can also be scheduled in a more appropriate time frame.

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Also, timely licensing of WC/T and the BELOCA methodology for operating plants has significant technical, operational, and financial impacts on the operating plant licensees. These impacts were delineated with the staff in detail during a joint licensee/Westinghouse meeting with the NRC on January 27, 1994 and again during a Westinghouse meeting with the NRC on January 26, 1995.

Therefore, in consideration of operating plant licensee needs, AP600 program needs, and the position expressed above, Westinghouse proposes the revised target schedule shown in Attachment A. Westinghouse realizes that there are elements of the proposed schedule that may likely require adjustment based on NRC review and we look forward to working together to establish a mutually acceptable schedule. We have already received NRC feedback on a draft version of this letter and anticipate further schedule discussions in May 1995. Key dates from the proposed schedule in Attachment A include:

- 5/95 - W issue responses to Round 2 RAIs on CQD Vols. 1 - 3
- 6/95 - W issue responses to all AP600 WC/T CAD RAIs except those related to the AP600 SSAR plant model and to long term core cooling
- 7/95 - W issue responses to Round 2 RAIs on CQD Vols. 4 - 5
 - NRC provide final RAIs covering all issues for conventional plant applicability (The NRC must provide this information as it becomes available in advance of this date to ensure resolution by 8/95. It is our current understanding that these RAIs will only address the results of the ongoing INEL assessment of the Westinghouse methodology versus the CSAU methodology and should be informally available in early May 1995.)
- 8/95 - W/NRC complete resolution of conventional plant WC/T and BELOCA issues
- 9/95 - Final ACRS meeting on BELOCA (1st week of 9/95)
 - NRC issue SER on WC/T and BELOCA applicability for conventional plants
 - W/NRC complete resolution of AP600 WC/T CAD issues
- 10/95 - NRC issue SER on initial conventional plant licensing application with BELOCA
 - W finalize AP600 LBLOCA SSAR analysis
- 2/96 - NRC complete reviews of NOTRUMP, LOFTRAN, WC/T for applicability to AP600 and prepare DSER input for these codes and analyses

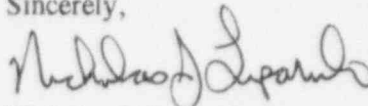
Please note that this schedule is consistent with conditions (a), (b), and (d) in your March 21st letter and, we believe, consistent with the intent of condition (c).

Westinghouse believes that we can meet operating plant and AP600 program needs if we work together using the revised target schedule shown in Attachment A to establish a mutually acceptable program schedule as a matter of urgency.

Regarding our discussions with the ACRS Thermal/Hydraulic Subcommittee on compliance with Regulatory Guide 1.157, Westinghouse agrees that this represents a potentially significant issue that could affect WC/T and its application. Westinghouse believes that our BELOCA approach does comply with the requirements of Regulatory Guide 1.157, and that the RAIs from the staff's consultant are the appropriate vehicle for resolving technical issues. To support this position, Westinghouse has prepared a "Regulatory Guide Compliance Document" demonstrating compliance of WC/T and our BELOCA methodology as described in WCAP-12945-P with NRC positions outlined in Regulatory Guide 1.157. Furthermore, it has been brought to our attention that the NRC's consultant has prepared a detailed report that reaches the same basic conclusion. Also, the NRC's consultant has started another independent review to specifically compare the Westinghouse methodology with the CSAU methodology. These results are expected by the end of April 1995. The NRC has planned a meeting on this subject with the ACRS T&H Subcommittee on May 2, 1995, and we will continue to work with the NRC staff to successfully resolve these issues.

Towards this end, Westinghouse and the NRC staff have instituted regular BELOCA licensing progress telephone calls to help ensure that successful completion of our licensing efforts. As part of these calls, we will jointly consider the effectiveness of our efforts. If significant issues or schedule problems arise, they will be brought to the attention of Mr. Ashok Thadani of the NRC and Mr. Nicholas Liparulo of Westinghouse to ensure timely resolution. Westinghouse will continue to interact regularly with the NRC to review progress and will work with the NRC as soon as possible in May 1995 to establish mutually acceptable means for these interactions (written reports, phone calls, meetings) and the frequency by which they should occur.

Sincerely,



Nicholas J. Liparulo

Manager, Nuclear Safety Regulatory and Licensing Activities

cc: T.Quay
T. Kenyon
J.Moore
A. Thadani
R. Architzel
K. Shembarger
W. Dean
W. Russell
F. Miraglia
P. Shea
E. Jordan
R. Jones

Attachment A

REVISED TARGET SCHEDULE FOR BELOCA LICENSING

Date	Conventional Plant Actions	AP600 Actions	UPI Plant Actions
4/95		NRC issue RAIs on the AP600 <u>W</u> COBRA/TRAC (<u>W</u> C/T) Code Applicability Document (CAD) (<u>W</u> informally received these RAIs on 4/10/95 and is working to resolve them)	
5/95	<u>W</u> issue responses to Round 2 RAIs on Code Qualification Document (CQD) Vols. 1 - 3	<u>W</u> issue preliminary AP600 SSAR and preliminary <u>W</u> C/T V&V reports	
6/95	2 nd conventional plant BELOCA license amendment request issued	<u>W</u> issue responses to all AP600 <u>W</u> C/T CAD RAIs except those related to the AP600 SSAR plant model and SSAR calculations, and to long term core cooling (which will be issued 9/95)	
7/95	<u>W</u> issues responses to Round 2 RAIs on CQD Vols. 4 - 5 (<i>RAIs pertinent to UPI application will be deferred to generic addendum review</i>) NRC issue final RAIs covering all issues for conventional plant (3 and 4 loop) applicability. <i>This requires provision of these RAIs in advance of this to enable resolution by 8/95</i>		<u>W</u> issue CQD Addendum for UPI Plants
8/95	<u>W</u> /NRC complete resolution of conventional plant <u>W</u> C/T and BELOCA issues 3 rd conventional plant BELOCA license amendment request issued		

Date	Conventional Plant Actions	AP600 Actions	UPI Plant Actions
9/95	Final ACRS meeting on BELOCA NRC issue SER on <u>WC/T</u> and BELOCA applicability for conventional plants	<u>W</u> /NRC complete resolution of AP600 <u>WC/T</u> CAD issues <u>W</u> issue the final AP600 <u>WC/T</u> V&V report	
10/95	NRC issue SER on 1 st conventional plant licensing application with BELOCA (1 st conventional plant license amendment request docketed 10/93) 4 th conventional plant BELOCA license amendment request issued	NRC issue supplemental AP600 DSER	1 st UPI plant BELOCA license amendment request issued
11/95			
12/95	NRC issue SER on 2 nd conventional plant licensing application with BELOCA	<u>W</u> respond to supplemental DSER open items	
1/96			
2/96	NRC issue SER on 3 rd conventional plant licensing application with BELOCA	NRC complete reviews of AP600 LOFTRAN, NOTRUMP applicability and prepare final AP600 SER input for <u>W</u> COBRA/TRAC, LOFTRAN, and NOTRUMP	NRC review and approve CQD Addendum for UPI plants
3/96			
4/96	NRC issue SER on 4 th conventional plant licensing application with BELOCA	AP600 FSER to Commission / ACRS	
5/96			
6/96			
7/96			
8/96			NRC issue SER on 1 st UPI plant licensing application with BELOCA

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 21, 1995

Mr. Nicholas J. Liparulo
Nuclear Safety and Regulatory Activities
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, Pennsylvania 15230

SUBJECT: REVIEWS OF WCOBRA/TRAC BEST ESTIMATE (BE) LOSS-OF-COOLANT ACCIDENT
METHODOLOGY AND AP600

Dear Mr. Liparulo:

Recently, Westinghouse has requested the Division of Systems Safety and Analysis, NRR, to explore means of expediting the review of the applicability of the WCOBRA/TRAC BE methodology to its conventional three and four loop plants. To date, the priority of our review has been for application to AP600, with only overlapping considerations for the conventional plants. Based on our assessment, our amended target schedule is:

- 6/95 - Review completion for WCOBRA/TRAC and AP600 applicability.
- 8/95 - Final meeting with Advisory Committee on Reactor Safeguards (ACRS), and issuance of safety evaluation report (SER) (with AP600 applicability supplement).
- 9/95 - Resume reviews of LOFTRAN and NOTRUMP applicability for AP600.
- 9/95 - WCOBRA/TRAC conventional plant applicability SER.
- 10/95 - Initial conventional plant WCOBRA/TRAC licensing application SER.
- 2/96 - SER input for AP600 Chapter 15 (WCOBRA/TRAC).
- 2/96 - AP600 LOFTRAN and NOTRUMP reviews complete (final SER input drafted).

Since the NOTRUMP and LOFTRAN validation reports are not scheduled for submittal until September 1995, and April 1995, respectively, it is recognized that the AP600 LOFTRAN and NOTRUMP DSER supplement inputs would be incomplete. Thus, we propose to issue initial requests for additional information (RAIs) in March 1995, and discontinue the LOFTRAN and NOTRUMP reviews until September 1995, in order to devote those resources to the review of WCOBRA/TRAC for conventional plants. Additionally, at the latest ACRS subcommittee meeting (February 15 and 16, 1995), a significant issue was raised affecting WCOBRA/TRAC and its application to any design. The resolution of this issue will divert the Nuclear Regulatory Commission and contractor resources. We have consulted with our contractor regarding scheduler impacts of the above and estimate that the following impacts would result:

Mr. Nicholas J. Liparulo

- 2 -

March 21, 1995

- a. The reviews of AP600 LOFTRAN and NOTRUMP will be delayed by about 3 months. The total impact would be about 3 months for the codes (December 1995), and the code review will not be reflected in the DSER Supplement. Assuming high quality and timely submittals provided by Westinghouse, this would not affect the FSER input schedule.
- b. Westinghouse must submit complete and comprehensive NOTRUMP and LOFTRAN RAI responses by August 1995, and major issues would be identified and resolved by the end of October 1995.
- c. Westinghouse must resolve all remaining WCOBRA/TRAC open items by the end of May 1995. This would include resolution of AP600 WCOBRA/TRAC applicability items in the same time frame.
- d. A final RAI covering all issues for conventional plant (3 and 4 loop) applicability will be issued by July 1995. Westinghouse must resolve all conventional plant WCOBRA/TRAC issues by August 1995.

At your request, we intend to pursue this change in utilization of resources, while monitoring Westinghouse responsiveness, effectiveness of the program, and acceptability of the impacts. Should our assessment indicate that the revised resource allocation is not sufficiently effective, we will reschedule our resources based on a reevaluation of the relative priorities of these reviews.

Sincerely,

Original Signed By:

Dennis M. Crutchfield, Associate Director
for Advanced Reactors and License Renewal
Office of Nuclear Reactor Regulation

Docket No. 52-003

cc: See next page

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ACRS THERMAL HYDRAULIC PHENOMENA SUBCOMMITTEE MEETING
NRC-NRR REVIEW BASIS FOR BEST-ESTIMATE ECCS THERMAL HYDRAULIC CODES
MAY 2, 1995
ROCKVILLE, MARYLAND

PRESENTATION SCHEDULE

	<u>Presentation Time</u>	<u>Actual Time</u>
I. <u>Introduction</u>		
• I. Catton, Subcommittee Chairman	5 min	8:30 am
II. <u>NRC-NRR Presentations</u>		
A. NRC-NRR Review Method for Use of Best-Estimate ECCS Codes		
1. Introduction and History	30 min.	8:45 am
• R. Jones, NRR		
2. "Walkthrough" of Provisions of Regulatory Guide 1.157	45 min	9:25 am
• F. Orr, NRR		
BREAK	15 min.	10:15 am
3. Westinghouse Compliance With Provisions of Regulatory Guide 1.157	120 min.	10:30 am
• C. Fineman, INEL		
LUNCH	60 min	12:45 pm
4. INEL Findings on Westinghouse Overall Best-Estimate Philosophy	45 min.	1:45 pm
• G. Wilson, INEL		
- Comparison with CSAU		
5. Summary and Comments	30 min.	2:45 pm
• F. Orr		
BREAK	15 min.	3:00 pm
III. Discussion	60 min	3:15 pm
• All		
IV. Subcommittee Caucus	15 min.	4:15 pm
- Follow-up Items from This Meeting		
- Decision to Bring Matter to ACRS		
V. Adjourn		4:30 pm