



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 5, 1998

MEMORANDUM TO: Thomas H. Essig, Acting Chief
Generic Issues and Environmental Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

FROM: Peter C. Wen, Project Manager *Peter C. Wen*
Generic Issues and Environmental Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JULY 20, 1998, MEETING WITH WESTINGHOUSE
REGARDING BEST-ESTIMATE SMALL BREAK LOCA MODEL ISSUES

On June 20, 1998, a public meeting was held at the U.S. Nuclear Regulatory Commission's (NRC's) offices in Rockville, Maryland, between members of Westinghouse, utility, and NRC staff. Attachment 1 lists attendees at the meeting. Attachment 2 is a copy of the non-proprietary material presented at the meeting.

The meeting started with a presentation by a Westinghouse representative of the meeting agenda and current loss-of-coolant accident (LOCA) model development activities within Westinghouse. Some of these activities include the program of developing the best-estimate small break LOCA model. This program is a joint partnership between Westinghouse/Consolidated Edison Company and Electric Power Research Institute. The lead plant to apply this methodology is Indian Point Unit 2.

Next, an utility representative presented the utility point of view. He stated that Con Edison was taking a lead role in the industry by having completed the best-estimate large break LOCA analysis project and initiating the best-estimate small break LOCA analysis project in response to the new 10 CFR 50.46 and Reg Guide 1.157. He emphasized that by using the best-estimate model they saw a real benefit in improving safety. He stated that this is achieved through better understanding of the transients, focusing on the real safety issues, and demonstrating more margins to the safety limits. He said that the increased flexibility in operations would lead to better operator training and more flexible and safe operations. Also through higher peaking factors, vessel fluence could be reduced. He also pointed out that the best-estimate model could be a cost-beneficial licensing action because of the significant saving through fuel management improvements, reduced reactor trips, and potential power uprating and life extension.

Finally, another Westinghouse representative presented the overall technical approach of the best-estimate small break LOCA model. This portion of the presentation was involved in discussion on Westinghouse proprietary information.

9808100121 980805
PDR ORG NRRRA
PDR

NRC FILE CENTER COPY

08/11-6 Meetings - Gen
RD-8-2 WEST, -ECCS
980157

Major discussion points regarding the schedule for submitting the topical reports for NRC staff review and the format of the submittal are as follows:

- Westinghouse plans to submit the related topical reports in late 1998, and requested the staff to begin a review in early 1999. The approved methodology will then be used in the Indian Point Unit 2's reload safety analysis in 2001-2002 time frame.
- The staff emphasized the importance of following the code scaling, applicability and uncertainty (CSAU) approach and providing documentation which is complete, comprehensive, and well formatted. The document is expected to be well indexed with a road map and comparison against the CSAU approach up-front. The staff stated that it would perform an acceptance review of the documentation to assure that these characteristics are evident.
- The staff indicated that there are no funds budgeted for contractor support; thus, the submitted topical reports' review would have to be performed in-house on a schedule consistent with the staff's workload.

The representatives of the NRC, Westinghouse, and utility agreed that this meeting was useful in accelerating the information exchange.

Attachments: As stated

cc w/atts: See next page

Major discussion points regarding the schedule for submitting the topical reports for NRC staff review and the format of the submittal are as follows:

- Westinghouse plans to submit the related topical reports in late 1998, and requested the staff to begin a review in early 1999. The approved methodology will then be used in the Indian Point Unit 2's reload safety analysis in 2001-2002 time frame.
- The staff emphasized the importance of following the code scaling, applicability and uncertainty (CSAU) approach and providing documentation which is complete, comprehensive, and well formatted. The document is expected to be well indexed with a road map and comparison against the CSAU approach up-front. The staff stated that it would perform an acceptance review of the documentation to assure that these characteristics are evident.
- The staff indicated that there are no funds budgeted for contractor support; thus, the submitted topical reports' review would have to be performed in-house on a schedule consistent with the staff's workload.

The representatives of the NRC, Westinghouse, and utility agreed that this meeting was useful in accelerating the information exchange.

Attachments: As stated

cc w/atts: See next page

DISTRIBUTION: See attached page

*See Previous Concurrence

Document Name: g:\pxw\msum0720.wst

OFFICE	PM:PGEB:DRPM	SC:SRXB	SC:PGEB <i>[Signature]</i>
NAME	PWen:sw <i>PCW</i>	EWeiss*	FAkstulewicz <i>[Signature]</i>
DATE	8/5/98	8/ 5 /98	8/5 /98

OFFICIAL OFFICE COPY

NRC/WESTINGHOUSE MEETING ON BEST-ESTIMATE SBLOCA MODEL ISSUES
LIST OF ATTENDEES
July 20, 1998

<u>NAME</u>	<u>ORGANIZATION</u>
Eric Weiss	NRR/SRXB
Ralph Caruso	NRR/SRXB
Frank Orr	NRR/SRXB
Joseph Staudenmeier	NRR/SRXB
Ralph Landry	NRR/SRXB
Jefferey Harold	NRR/DRPE
Peter Wen	NRR/PGEB
Arthor Ginsberg	Consolidated Edison Co.
Jeffrey Bass	Westinghouse
Steve Bajorek	Westinghouse

Westinghouse / Con Edison / EPRI

**Best Estimate Small Break LOCA
Methodology Development Program**

**J. C. Bass
Manager, LOCA Integrated Services
Westinghouse Electric Co.
(412) 374-4262**

July 20, 1998

AGENDA

I. Introduction (S. Ira)

- a) Introduction to Overall Plan and Objectives

II. Industry Needs and Benefits (A. Ginsberg)

- a) Utility Perspective
- b) Technical Benefits

III. Technical Approach (S. M. Bajorek)

- a) CSAU Approach Applied to SBLOCA
- b) Small Break PIRT
- c) Code Revisions and V&V for BE-SBLOCA
- d) PWR Calculations / Scoping Study Results
- e) Statistical Methodology
- f) Current Issues

IV. Proposed Schedule for Submittals/Review (S. M. Bajorek)

V. Discussion (All)

INTRODUCTION

- > WESTINGHOUSE IS COMMITTED TO THE DEVELOPMENT OF STATE-OF-THE-ART METHODOLOGIES FOR LOSS OF COOLANT LOCA ANALYSIS**
- > CONTINUED DEVELOPMENT INSURES:**
 - >> SAFETY**
 - >> COST EFFECTIVE OPERATION**
 - >> ABILITY TO UNDERSTAND NEW & EVOLVING ISSUES**
- > LONG TERM LOCA DEVELOPMENT PLAN HAS INCLUDED:**
 - >> APPENDIX K MODEL IMPROVEMENTS**
 - >> INTERIM "SECY" METHODOLOGY FOR 2-LOOP UPI PWRS**
 - >> BEST ESTIMATE LARGE BREAK LOCA**
 - >> AP600 BELOCA ANALYSIS**
- > OUR INTENTION IS TO CONTINUE ADVANCED T/H CODE DEVELOPMENT TO MEET CUSTOMER AND REGULATORY NEEDS**
- > BEST ESTIMATE SMALL BREAK LOCA IS THE NEXT STEP**

BEST ESTIMATE SMALL BREAK LOCA PROGRAM

- > JOINT PARTNERSHIP BETWEEN WESTINGHOUSE / CON EDISON AND EPRI**
- > LEAD PLANT IS INDIAN POINT UNIT 2**

PROGRAM MAJOR OBJECTIVES

- > DEVELOP AND LICENSE A BEST ESTIMATE SMALL BREAK METHODOLOGY GENERICALLY APPLICABLE TO CONVENTIONAL WESTINGHOUSE 3 and 4 LOOP PWRs.**
- > PERFORM A PLANT SPECIFIC APPLICATION FOR INDIAN POINT UNIT 2.**

OBJECTIVES FOR TODAY'S MEETING

1. DEMONSTRATE THAT THE FEASIBILITY OF CSAU TYPE OF METHODOLOGY FOR BEST ESTIMATE SMALL BREAK ANALYSIS & SHOW THAT WESTINGHOUSE CAN AND WILL FORMAT THE METHODOLOGY TO ACCOMODATE AN EFFICIENT REVIEW.

2. IDENTIFY & DISCUSS ANY MAJOR ISSUES

3. PROPOSE A REVIEW SCHEDULE

cc:

Mr. Nicholas Liparulo, Manager
Equipment Design and Regulatory Engineering
Westinghouse Electric Corporation
Mail Stop ECE 4-15
P.O. Box 355
Pittsburgh, PA 15230-0355

Mr. Jack Bastin, Director
Regulatory Affairs
Westinghouse Electric Corporation
11921 Rockville Pike
Suite 107
Rockville, MD 20852

Mr. Hank Sepp, Manager
Regulatory and Licensing Engineering
Westinghouse Electric Corporation
PO Box 355
Pittsburgh, PA 15230-0355

Mr. Steve Bajorek
Westinghouse Electric Corporation
PO Box 355
Pittsburgh, PA 15230-0355

Distribution: Mtg. Summary w/ Westinghouse Re Best-Estimate SBLOCA Model Issues Dated 8/5/90

Hard Copy

Docket File

PUBLIC

PGEB R/F

OGC

ACRS

PWen

Eric Weiss

Ralph Caruso

Frank Orr

Joseph Staudenmeier

Ralph Landry

Jefferey Harold

E-Mail

SCollins/FMiraglia

BSheron

RZimmerman

BBoger

JRoe

DMatthews

TEssig

FAkstulewicz

TCollins

GHolahan

SNewberry

GTracey, EDO