

September 7, 2006

MEMORANDUM TO: Jimi T. Yerokun, Branch Chief  
Risk Application and Special Projects Branch  
Division of Risk Assessment and Special Projects  
Office of Nuclear Regulatory Research

FROM: Michele N. Laur, Senior Reliability and Risk Engineer */RA/* J. Yerokun for  
Risk Application and Special Projects Branch  
Division of Risk Assessment and Special Projects  
Office of Nuclear Regulatory Research

SUBJECT: MEETING WITH SANDIA NATIONAL LABORATORIES AND AN  
EXPERT PANEL ON MELCOR/MACCS CODES IN SUPPORT OF  
THE STATE-OF-THE-ART REACTOR CONSEQUENCE ANALYSES  
PROJECT

A public meeting was held on August 21-24, 2006 at the Wyndham Albuquerque Hotel in Albuquerque, New Mexico as part of the State-of-the-Art Reactor Consequence Analysis (SOARCA) project (JCN N6306). The overall purpose of the meeting was to conduct a priority review of MELCOR and MACCS modeling to determine if the code modeling was consistent with the project objectives to use state of the art modeling with emphasis on realism in phenomenological and system treatments. The review was conducted by two panels drawn from the nuclear industry and the DOE national laboratory complex with recognized expertise in the MELCOR and MACCS2 numerical simulation tools. The meeting was attended by U.S. Nuclear Regulatory Commission (NRC) and Sandia National Laboratories (SNL) staff.

The list of attendees (including a meeting agenda) is provided in enclosure 1. The meeting handouts are available upon request. The meeting was coordinated and facilitated by SNL staff and included the following agenda items:

- 1) MELCOR modeling best practices review
- 2) MELCOR panel deliberations
- 3) MACCS2 modeling best practices review
- 4) MACCS2 panel deliberations

The MELCOR and MACCS2 panels each consisted of five recognized experts on the phenomenological models and overall simulation technology within the MELCOR and MACCS2 codes. The members of the MELCOR panel were as follows:

- 1) Dr. Robert Henry, Fauski and Associates
- 2) Dr. Mohsen Khatib-Rahbar, Energy Research, Inc.
- 3) Dr. Robert Martin, Areva
- 4) Dr. Robert Sanders, Oak Ridge National Laboratory
- 5) Dr. Martin Sonnenkalb, Gesellschaft fur Anlagen-und Reaktorsicherheit mbH

The members of the MACCS2 panel were as follows:

- 1) Dr. Jon Helton, Sandia National Laboratories
- 2) Dr. Mohsen Khatib-Rahbar, Energy Research, Inc.
- 3) Dr. Vinod Mubayi, Brookhaven National Laboratory
- 4) Dr. Kevin O'Kula, Washington Management Solutions, Inc.
- 5) Dr. Jun Li, Polestar

The experts found the MELCOR code and the proposed approach to applying it (i.e., best practices) to be appropriate for performing realistic predictions of accident progression and source term for the SOARCA project. There were several recommendations directed at confirming the models and addressing uncertainties. The experts found the MACCS code and the proposed approach to applying it (i.e., best practices) to be generally appropriate for performing realistic predictions of offsite consequences for the SOARCA project. The observations and comments of the individual panelists were recorded during the meeting and will be summarized in two separate reports.

Enclosure

1. List of Attendees and Meeting Agenda

The members of the MACCS2 panel were as follows:

- 1) Dr. Jon Helton, Sandia National Laboratories
- 2) Dr. Mohsen Khatib-Rahbar, Energy Research, Inc.
- 3) Dr. Vinod Mubayi, Brookhaven National Laboratory
- 4) Dr. Kevin O'Kula, Washington Management Solutions, Inc.
- 5) Dr. Jun Li, Polestar

The experts found the MELCOR code and the proposed approach to applying it (i.e., best practices) to be appropriate for performing realistic predictions of accident progression and source term for the SOARCA project. There were several recommendations directed at confirming the models and addressing uncertainties. The experts found the MACCS code and the proposed approach to applying it (i.e., best practices) to be generally appropriate for performing realistic predictions of offsite consequences for the SOARCA project. The observations and comments of the individual panelists were recorded during the meeting and will be summarized in two separate reports.

Enclosure

1. List of Attendees and Meeting Agenda

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DATE	09/07/06		09/07/06		09/07/06	

Attendance List

August 21 - 22, 2006 MELCOR Meeting

Sonnenkalb, Martin	Panel
Khatib-Rahbar, Mosen	Panel
Martin, Robert	Panel
Henry, Robert	Panel
Sanders, Robert	Panel

Cole, Randall	SNL
Forrester, John	SNL
Kalinich, Don	SNL
Cleary, Virginia	SNL
Jun, Joonyub	SNL
Walck, Marianne	SNL
Hensen, Danielle	SNL
Gauntt, Randall	SNL
Wagner, KC	SNL
Humphries, Larry	SNL
Sprung, Jeremy	SNL
Wheeler, Tomothy	SNL
Cook, Jason	SNL
Burns, Shawn	SNL

Schaperow, Jason	NRC
Tinkler, Charles	NRC

Nause, Ray	dycoda, LLC
Leonard, Mark	dycoda, LLC

Ross, Kyle	LANL
McClure, Patrick	LANL

August 23 - 24, 2006 MACCS2 Meeting

O'Kula, Kevin	Panel
Khatib-Rahbar, Mosen	Panel
Li, Jun	Panel
Helton, Jon	Panel
Mubayi, Vinod	Panel
Cleary, Virginia	SNL
Jun, Joonyub	SNL
Walck, Marianne	SNL
Hensen, Danielle	SNL
Gauntt, Randall	SNL
Sprung, Jeremy	SNL
Cook, Jason	SNL
Bixler, Nathan	SNL
Burns, Shawn	SNL
Schaperow, Jason	NRC
Tinkler, Charles	NRC
Sullivan, Randy	NRC
Mitchell, Jocelyn	NRC (via teleconference link)
Saunders, Mike	Erin Engineering