

September 19, 2014

MEMORANDUM TO: Tara Inverso, Chief  
Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

FROM: Aaron L. Szabo, Cost Analyst */RA/*  
Rulemaking Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF AUGUST 21, 2014 PUBLIC MEETING ON THE  
FILTERING STRATEGIES RULEMAKING

The U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meeting on August 21, 2014, to discuss the filtering strategies and severe accident management of boiling water reactors (BWR) with Mark I and Mark II containments (filtering strategies) rulemaking. The public meeting was held at the NRC headquarters location in Rockville, Maryland. The purpose of the meeting was to discuss: (1) renaming the rulemaking; (2) new mapping of the alternatives for the rulemaking; (3) "getting to done" for the rulemaking; (4) performance goals; (5) updated preliminary quantitative information; and (6) insights from the Argonne National Lab (ANL) research.

The meeting was attended by 41 individuals primarily representing industry representatives and NRC staff. Of the 41 participants, 10 participated in the meeting through audio teleconferencing and webinar.

The NRC presentation materials are available in Agencywide Documents Access and Management System (ADAMS) under Accession No. ML14234A445, "08/21/2014 Filtering Strategies Rulemaking Public Meeting – NRC Presentation." The industry presentation materials are available in ADAMS under Accession Nos. ML14234A468, "Filtering Strategies Rulemaking Public Meeting – Industry Presentation – Part 1," and ML14234A472, "Filtering Strategies Rulemaking Public Meeting – Industry Presentation – Part 2."

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The major areas of discussion are summarized below:

### NRC Presentation

- Modified name of rulemaking.
  - The NRC is changing the name of the rulemaking to: Containment Protection and Release Reduction of BWR with Mark I and Mark II containments (CPRR) rulemaking
- Discussed performance goals.
  - Recommended performance goal: Protect public health and safety by minimizing potential releases of significant amounts of radioactive material following severe accident sequences through containment failure prevent measures and release reduction measure for BWR with Mark I and Mark II containments.
  - Definition of “minimizing” will be described within the performance criteria.
- Discussed new alternative mapping. Modifying the alternative numbers and names to a more logical and easier to follow process based on failure mode.
- Provided information that will be provided within the draft regulatory basis and how the staff will “get to done”.
- Discussed use of information provided by industry thus far for the rulemaking.
- Presented MELCOR analysis for BWR with Mark II containments.
  - Less code runs than for BWR with Mark I containments.
- Presented methodology for offsite consequence analyses using the MELCOR Accident Consequence Code System (MACCS).
- Provided updates on the probabilistic risk assessment (PRA).
- Discussed the status and use of human reliability analysis (HRA) within the CPRR rulemaking.

### Industry Presentation

- Provided insights from Argonne National Lab (ANL) research.
  - Water addition sufficient to remove sensible, chemical, and decay heat will prevent core spread to containment liner (prevent liner melt through).
  - In-containment flooding of much less than current severe accident management guidance (four feet) provides sufficient long term stabilization of core debris.
  - Results bound MELCOR and MAAP core debris ex-vessel melt conditions.
- Provided update of core damage event tree and accident progression event trees.
- Discussed preliminary MAAP results.
  - Severe accident water addition (SAWA) protects containment by reducing drywell temperatures.
  - Can achieve decontamination factors (DF) greater than 1,000 by having SAWA with an additional benefit from severe accident water management
    - NRC questioned how MAAP was providing DF great than 1,000 when MELCOR was not.
  - Provided relative DF for each alternative.

Takeaways

- NRC
  - Look at name for alternative 3 as there are also release reduction benefits from water addition.
  - Provide diagram of filter vent path.
  - Provide working copies of draft regulatory basis before finalization.
  - Discuss differences in decontamination factor between MAAP and MELCOR.
  
- Industry
  - Facilitate site visit to Exelon plant for better understanding of HRA.

Enclosure:  
List of Attendees

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OFFICE	NRR/DPR/PRMB:CA	NRR/DPR/PRMB:RS*	NRR/DPR/PRMB:BC*	NRRDPR/PRMB:CA*
NAME	ASzabo	GLappert	TInverso	ASzabo
DATE	9/18/2014	9/19/2014	9/19/2014	9/19/2014

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## LIST OF MEETING ATTENDEES

<b>Name</b>	<b>Organization</b>
Aaron L. Szabo	NRC/NRR/DPR
Phil Amway	Exelon/BWROG
Jana Bergman	Curtiss-Wright/Scientech
Jeff Gabor	ERIN
Hossein Esmaili	NRC/RES/DSA
Jesse Phillips	NRC/RES/DSA
Doug True	ERIN
Jerry Bonnanno	NEI
Yang Hsien J. Chang	NRC/RES/DRA/HFRB
Steven Kraft	NEI
Marty Stutzke	NRC/RES
Rick Wachowiak	EPRI
Randy Bunt	SNC/BWROG
Damian Mirizio	WEC
Terri V. Farthing	GEH
Greg Krueger	Exelon
Keith Compton	NRC/RES/DSA
Damian Peko	DOE/NE
Sud Basu	NRC/RES/DSA
Jerome Bettle	NRC/NRR/DSS
Nageswara Karipineni	NRC/NRR/DSS
Eric Bowman	NRC/NRR/JLD
Aby Mohseni	NRC/NRR/DPR
Tim Collins	NRC/NRR/JLD
Fred Schofer	NRC/NRR/DPR
Tara Inverso	NRC/NRR/DPR
James Shea	NRC/NRO/DARR
Raj Auluck	NRC/NRR/JLD
Jon Barr	NRC/RES/DSA
Betsy Heck	Industry
Bill Reckley	NRC/NRR/JLD
Francis Loscalzo*	Fukushima Team
Glen Seeman*	GE Power & Water
Dan Jacobsen*	Entergy
Shayne Tenace*	Exelon
William McTigue*	PSEG
Yuya Aoyagi*	Toshiba American Nuclear Energy Corporation
Robert Ginsberg*	Duke Energy
Dennis Henneke*	GEH
Daniel Ludwig*	Xcel Energy
Leon Rafner*	Centrec
* attended via teleconference	

ENCLOSURE