

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."

CONTACT: Aaron L. Szabo, NRR/DPR
301-415-1985

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

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

DISTRIBUTION:

| | | | |
|---------|------------|-----------|---------|
| PUBLIC | RidsNrrDpr | RidsResOd | ASzabo |
| RDennig | TInverso | GLappert | RAuluck |

Accession Nos.: Pkg. ML14260A369; Notice ML14219A069; Summary ML14260A374; Presentation Materials; ML14234A445 ML14234A468, ML14234A472 NRC-001 *by email

| 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 |

OFFICIAL RECORD COPY

LIST OF MEETING ATTENDEES

| Name | Organization |
|-------------------------------|---|
| 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 Bettie | 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