

January 16, 2014

COMPANY: GENERATION MPOWER, LLC.

DESIGN: B&W MPOWER™ SMALL MODULAR REACTOR DESIGN

SUBJECT: SUMMARY OF DECEMBER 11, 2013 PUBLIC MEETING REGARDING
TOPICS IN THE BABCOCK & WILCOX (B&W) MPOWER DESIGN SPECIFIC
REVIEW STANDARD (DSRS)

On December 11, 2013, a public meeting was held between the U.S. Nuclear Regulatory Commission (NRC), Generation mPower (GmP), and members of the public at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Room O4-B06, Rockville, Maryland. The purpose of this meeting was to discuss the public comments received by the NRC on the mPower design specific review standard (DSRS).

Approximately 2000 comments were received on the mPower DSRS. The NRC intends to publish the complete comment set with NRC staff resolutions in early 2014.

The meeting began with a discussion on comments that were repeated throughout the DSRS comment set and have thus been designated as generic comments by the NRC. One common thread throughout the comments and the discussion during the meeting was that thorough documentation in the application will reduce the number of requests for additional information (RAIs) and optimize review time. There were several comments regarding the elimination of certain structures, systems, and components (SSCs) as they are not applicable to the mPower design; SSCs that are historically used to address a safety or risk function will most likely not be eliminated to ensure the staff performs an assessment of the new SSC that is going to address the function. Several DSRS sections contain a safety/risk classification similar to NUREG – 0800 Introduction Part 2; the NRC will consider the probabilistic risk assessment (PRA), reliability assurance program (RAP), and seismic and quality classifications provided by the applicant to risk inform the scope of the application review. Many comments noted that DSRS sections were not mPower specific and should be an SRP section instead; the NRC explained that timing and resources were a factor in the decision to issue sections as a DSRS vs. an SRP. As an example, the NRC noted that sections 9.5.4 - 9.5.8 will no longer rely on the SRP update but instead will be issued as DSRS sections for public comment along with seven additional DSRS sections in early 2014. The comments regarding references to boiling water reactors (BWRs) or BWR specific terms will be discussed during a future follow up meeting on the BWR/PWR attributes of the mPower design.

Next, topics related to balance of plant were discussed. The NRC staff does not have a clear understanding of the mPower balance of plant SSCs as the design was still evolving when the staff wrote the majority of the DSRS sections. In particular it was noted that the water systems in the mPower design are very different than the recently reviewed large light water reactors. GmP suggested a meeting early in 2014 to discuss this topic. Once the application is received, the NRC staff will be able to determine which parts of the DSRSs apply and will conduct the review accordingly. GmP inquired about any future changes to the DSRS or SRP due to

Fukushima. The NRC responded that there is currently rulemaking underway related to Fukushima. The NRC staff was able to provide some insights as to how the most recent reviews handled Fukushima. Fukushima documentation including the relationship to loss of large areas (LOLA) and aircraft impact (AIA) will be discussed during a future meeting. The next presentation covered comments related to chapters reviewed by the reactor systems, nuclear performance, and code review branch. The NRC staff stated their agreement with the comments that ITAAC does not apply to fuel. For the comments related to topics considered a boiling water reactor (BWR) issue, such as shadow corrosion, the NRC staff cited the control rods with dissimilar metals as an example of how this could occur and informed GmP that they would have to demonstrate why it is not an issue in the application. There were comments regarding references to old B&W reports in the DSRS. The NRC staff noted that these are mainly reviewer aids and the NRC would not ask GmP to provide these references. GmP expressed concern with the use of FAMREC as an audit code given its 1979 vintage. This will be the topic of a future meeting between GmP and the staff.

The next section discussed was 6.2.4 which is the responsibility of the containment ventilation branch. There was a comment from the public to revise item #13 under Section II, Acceptance Criteria to acknowledge that the 3-foot penetration size specified in 10 CFR 50.34(a)(f)(iv) could vary based on the size of the reactor containment and the design of the mitigation features needed to prevent containment failure. The NRC staff informed GmP that an exemption request for the 3-foot diameter containment penetration is the best way to address the issue.

The mechanical engineering branch discussed the comments in some of their sections. The staff informed the public that they had changed information in section 3.9.4 due to a latch design update but would not remove the topic of water hammer because the design is not finalized. GmP has redefined the reactor pressure vessel (RPV) boundary which may make it difficult for the staff to determine which DSRS sections would apply to the different parts of the RPV. The example of where flow induced vibration would apply (upper, lower, etc.) was cited. A roadmap of the RPV will be the topic of a future meeting.

The next topics were presented by the radiation protection and accident consequences branch. The staff noted that BTP 11-3, 11-5, and 11-6 and DSRS section 12.1 will be "use as-is" in the final DSRS Scope and Safety Review Matrix (ADAMS ML13088A252) since the SRP for these sections was recently updated. There were several public comments on the necessity of new DSRS section 11.6; NRC staff explained that this section was developed since the new DSRS Chapter 7 no longer included elements that were relied upon for the radiation protection review. The NRC staff noted that SECY 10-0034 will be added to DSRS section 15.0.3. There were comments regarding the deletion of sections 15.6.2, and 15.6.3, 15.6.5.A, and 15.6.5.B in the DSRS. The NRC staff noted that these sections would be reviewed under DSRS section 15.0.3.

The last set of comments related to topics in sections 3.7, 3.8, and 3.5 was presented by the structural engineering branch. The NRC staff observed that this is the first case of the NRC reviewing a deeply embedded containment structure. The NRC staff responded to the comments regarding performance-based response spectra (PBRs) by noting that there is a concern of variability with depth. The NRC responded to the comments regarding adoption of newer industry standards for steel concrete structures by noting that these newer standards have not been reviewed or endorsed by the NRC. GmP was strongly urged to submit a topical report for the use of steel concrete structure in the design, or thoroughly document the bases for use when submitting the Design Control Document, if GmP plans to use industry standards that

have not been previously been reviewed and approved by the NRC. GmP requested a future meeting to discuss technical comments on DSRS sections 3.7 and 3.8 that were not covered during the public meeting.

The meeting agenda and meeting attendees are included in Enclosures 1 and 2. The meeting slide presentations are available through the Agencywide Documents Access and Management System (ADAMS). The ADAMS accession numbers for the public meeting material are ML13346A067 and ML13325B231. ADAMS is the system that provides text and image files of NRC's public documents. Documents are available electronically at the NRC's Electronic

Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. If you do not have access to ADAMS or have problems accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) staff at 1-800-397-4209, 301-415-4737, or pdr@nrc.gov

Please direct any inquiries to me at 301-415-5864, email: Courtney.StPeters@nrc.gov, or Joelle Starefos at 301-415-6091, email: Joelle.Starefos@nrc.gov.

Sincerely,

/RA/

Courtney St. Peters, Project Manager
Small Modular Licensing Branch 1
Division of Advanced Reactors and
Rulemaking
Office of New Reactors

Project No.: 0776

Enclosure:

1. Agenda
2. List of Attendees

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NAME	CStPeters	JStarefos
DATE	01/13/2014	01/16/2014

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AGENDA

AGENDA FOR PUBLIC MEETING BETWEEN GENERATION MPOWER LLC. AND THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) STAFF

WEDNESDAY, DECEMBER 11, 2013; 8:30 a.m. - 4:45 p.m.

TIME	TOPIC	LEAD
8:30 am – 8:40 am	Introductions	NRC
8:40 am – 9:10 am	<u>Generic Comments- Small Modular Reactor Licensing Branch 1 (SMRLB1)</u> <ul style="list-style-type: none"> RTNSS Language 	NRC
9:10 am – 10:40 am	<u>Balance of Plant & Technical Specifications Branch (BPTS) and Balance of Plant & Fire Protection Branch (BPFB) Topics</u> <ul style="list-style-type: none"> Chapter 9 (Including 9.2.1, 9.2.5) Chapter 10 	NRC
10:40 am – 10:55 am	Break	All
10:55 am – 11:55 am	<u>Reactor Systems, Nuclear Performance, & Code Review Branch (SRSB) Topics</u> <ul style="list-style-type: none"> Fuel System (4.2) Nuclear Design (4.3) RHR (5.4.7) RHR Design Requirements (BTP 5-4) TH Stability 15.9.A 	NRC
11:55 am – 12:00 pm	Public Opportunity to Discuss with NRC	Public
12:00 pm – 1:00 pm	Lunch	All
1:00 pm- 1:30 pm	<u>Containment and Ventilation Branch (SCVB) Topics</u> <ul style="list-style-type: none"> 6.2.4 (item #6 – a requirement to have a dedicated 3 ft penetration, per 10 CFR 50.34(f)(3)(iv)) 	NRC
1:30 pm – 2:15 pm	<u>Mechanical Engineering Branch (MEB) Topics</u> <ul style="list-style-type: none"> 3.9.5 (Comments on FIV and App 1, RPV Materials) 3.2.1/3.2.2 3.9.4 	NRC
2:15 pm – 2:30 pm	Break	All

2:30 pm – 3:30 pm	<u>Radiation Protection and Accident Consequences Branch (RPAC) Topics</u> <ul style="list-style-type: none"> • Radiation Consequence SG Tube Failure (15.6.3) • Radiation Consequences Small Lines (15.6.2) • Chapter 11 • Chapter 12 • 11.6 (purpose and connection to Chapter 7) • Chapter 15 – 2 LOCAs that we removed in DSRS were determined to need analysis in DCD by B&W Chapter 15 – severe accident sections eliminated 	NRC
3:30 pm – 3:45 pm	Break	All
3:45 pm – 4:30 pm	<u>Structural Engineering Branch (SEB) Topics</u> <ul style="list-style-type: none"> • 3.7 • 3.8 	NRC
4:30 pm – 4:35 pm	Public Opportunity to Discuss with NRC	Public
4:35 pm – 4:45 pm	Closing Remarks	NRC

ATTENDANCE LIST

**PUBLIC MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC)
STAFF AND GENERATION MPOWER
December 11, 2013**

NAME	ORGANIZATION
Jan Mazza	NRC
Demetrius Murray	NRC
Courtney St. Peters	NRC
Joelle Starefos	NRC
Keith Lippy	Bechtel
Steve Schilthelm	B&W
Althea Wyahe	Bechtel
Steve Mirsky	NuScale Power
Peter Hastings	Generation mPower
Kenny Thomas	NRC
William Slagle	B&W/Bechtel
Chester Poslusny	B&W mPower
Stu Magruder	NRC
David Terao	NRC
Ata Istar	NRC
Devender Reddy	NRC
Angelo Stubbs	NRC
Antonio Dias	NRC
Eileen McKenna	NRC
Larry Wheeler	NRC
Mark Caruso	NRC
Joe Donoghue	NRC
John Budzynski	NRC
Anne-Marie Grady	NRC
Steve Shapiro	Bechtel
Michael McHood	Bechtel
Jack Demitz	Bechtel
Robert Hsu	NRC
Pei-Ying Chen	NRC
Jason Huang	NRC
Theresa Clark	NRC
Ron LaVera	NRC
Jean-Claude Dehmel	NRC

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**PUBLIC MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC)
STAFF AND GENERATION MPOWER
December 11, 2013**

NAME	ORGANIZATION
Mike McCoppin	NRC
Jim Xu	NRC
Michelle Hart	NRC
Sunwoo Park	NRC
George Thomas	NRC
Abdul Kazi	NRC
Weijun Wang	NRC
Tarico Sweat	NRC
Raul Hernandez	NRC
Michael D. Mazaika	NRC
Tim Drzewiecki	NRC
Jeff Schmidt	NRC
Fred Forsaty	NRC
Jim Saldarini	Bechtel mPower
Chris Koplin	Bechtel
Sandra Sloan	B&W
Jim Kinsey	Idaho National Lab
Darrell Gardener	Generation mPower
Dave Kanuch	B&W
James Haldeman	Bechtel
Angela McAlpin	Bechtel
Dave Kaas	Bechtel
Steve Kline	Bechtel
Masrur Khan	Bechtel
Eric Williams	B&W
Matt Ales	B&W
Mike Edwards	B&W
Dudley Raine	B&W

Enclosure