October 18, 2010

MEMORANDUM TO: Stewart N. Bailey, Chief
Safety Issues Resolution Branch
Division of Safety Systems
Office of Nuclear Reactor Regulation

FROM: Joseph A. Golla, Project Manager ***/RA/***
Licensing Processes Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF SEPTEMBER 22, 2010, PUBLIC MEETING WITH THE BOILING WATER REACTOR OWNER'S GROUP (BWROG)

On September 22, 2010, Nuclear Regulatory Commission (NRC) staff met with representatives of the BWROG, in a public meeting in Rockville, Maryland. The purpose of the meeting was to discuss the review of boiling water reactor (BWR) emergency core cooling system (ECCS) suction strainer issues. Note that the meeting did not span a day and a half as shown on the agenda. Instead, it was conducted entirely on Wednesday September 22, 2010, by consensus of all participants. Enclosure 1 provides a list of those in attendance. Enclosure 2 is the meeting agenda. Information presented at the meeting is available in the NRC Agencywide Documents Access and Management System (ADAMS) under Accession No. ML102800089.

This was the second of four monthly meetings being held August through November 2010, in order for the BWROG to present to the NRC their preliminary assessment of twelve technical issues to address ECCS suction strainer performance. Three issues were addressed at this meeting, three were addressed at a meeting August 10&11, 2010 (see ADAMS Accession No. ML102360056 for that meeting summary), and it is planned that three will be addressed at each of the remaining meetings. The twelve technical issues were initially presented to the BWROG by the NRC staff at a public meeting held on November 27, 2007 (see ADAMS Accession No. ML080240235 for that meeting summary). The three issues discussed at this meeting were, Spherical Zone of Influence (ZOI), Assessment of Coatings, and Near Field Effects and Scaling.

Mr. Michael Scott, then Chief of the Safety Issues Resolution Branch (SSIB) of the Division of Safety Systems (DSS) of the Office of Nuclear Reactor Regulation (NRR) made opening remarks. (Note that since this meeting, a new individual, Mr. Stewart Bailey, has taken over as SSIB Branch Chief.) After this, Mr. Scott reviewed the status of action items from the August meeting that were due for this meeting, with the BWROG representatives and NRC staff. Those are Actions 1 to 4 discussed below. Note that Actions 5 to 9 from the August meeting have due dates beyond the date of this meeting. The resolution of these items will be discussed in an upcoming meeting summary.

<u>Review of Action Items 1 to 4 from the August 10 & 11, 2010, Meeting</u>

Action 1: Closed. (Suction strainer configurations.)

Actions 2 and 3: Open. (Air jet testing, 40% reduction in destruction pressure.) New Action to address Actions 2 & 3: The BWROG will develop a written position on its views with regard to their own slide show presentation, and in response to comments made by the staff at the August meeting as to whether the 40% reduction in material destruction pressure should apply to BWRs. Specifically, the staff stated that a sufficient case has yet to be made to support the assertion by the BWROG that the use of stagnation pressure as the damage pressure accounts for differences among media (i.e., air, steam, steam/water mixture). To be provided by October 15, 2010.

Action 4: Closed. (Penalties and credits taken in the Utility Resolution Guide.) The staff's position on volume swept out by isobars of saturated steam vs. saturated liquid remains consistent with the URG.

Technical Issues This Meeting (September)

Following review of Action Items from the August meeting, the BWROG made presentations on the three technical issues on the agenda for this meeting. All three presentations were given by Mr. Tony Borger, ECCS Suction Strainers Committee Source Term Vice Chairman, BWROG.

Issue No. 5, Assessment of Coatings

The first presentation was on Issue No. 5, titled "Assessment of Coatings." (The subject order differs from the order presented in the agenda. The change was made to accommodate an NRC staff member who would not be able to be present in the afternoon session. Mr. Scott and the NRC Project Manager for the meeting ascertained that there were no objections to the schedule change before moving forward with the meeting. Also, note the issue numbers correspond to those in the November 27, 2007, meeting summary noted above.) The overall objective of this activity is to validate whether the existing coatings source term is supportable.

This presentation provided discussions on issue and regulatory summary, resolution strategy, relationships to other issues, and next steps and milestones.

Action Items identified during the discussions of this presentation are the following (Note, to avoid confusion between Action Items of the four meetings, August through November, the Action numbers will be continuous. For example, the first Action Number for this meeting will be Action No.10 since there were nine Actions in the August meeting.):

Action 10: The BWROG is to provide submittal date for draft coatings survey by October 20, 2010. (Survey is described on presentation slide no. 9 of the Issue No. 5, "Assessment of Coatings" presentation. See ML102800095)

The staff stated that the BWROG action in 2Q2011 (refer to slide no. 11) should include survey results, BWROG assessment of results, and proposed path forward.

The staff provided to the BWROG a written summary of its views on the coatings issue, which indicates what an adequate coatings assessment program looks like. This may be viewed at ADAMS Accession No. ML102800115. Regarding this handout, the staff stated that if licensees commit to the latest American Society for Testing and Materials (ASTM) standards, then no further information would be needed by the NRC on method of assessment.

The staff also stated that Regulatory Guide (RG) 1.54, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," Rev. 2, discussed in this handout, reflects the staff's position on an adequate coatings assessment program. The document is currently in draft and should be issued final in 4Q2010. The staff stated that the new RG revision contains four "exceptions" (i.e., clarifications) on the use of ASTM 5163-08. The staff provided another handout to the meeting participants of a portion of the draft RG 1.54, Rev. 2, with the four "exceptions." See ADAMS Accession No. ML102800119 for this handout. The BWROG stated that the draft "exceptions" appear to go beyond the March 2008 coatings review guidance.

Issue No. 12, Spherical ZOI

The second presentation was on Issue No. 12, Spherical ZOI. See ADAMS Accession No. ML102800091 for this. This presentation provided discussions on the technical concern, issue history, resolution strategy, and next steps and milestones. The overall technical concern is that, while a spherical ZOI (accepted by the staff) may have maximized the quantity of debris, it may have precluded the selection of a lesser amount of more problematic debris, such as microporous or calcium silicate insulation.

The staff stated that its current position, as documented in the 2004 Safety Evaluation of NEI 2004-07 for PWRs, and the URG SE for BWRs, and in NUREG/CR-7011, "Evaluation of Treatment of Effects of Debris in Coolant on ECCS and CSS Performance in Pressurized Water Reactors and Boiling Water Reactors," is that spherical ZOIs are acceptable. The staff is considering whether a change in that position is appropriate for BWRs. In doing this, the staff will consider information provided by the BWROG.

Action 11: The staff stated that it would provide, by the November 2010 meeting with the BWROG, a clear statement of intention on whether it plans to revise its position on spherical ZOI.

The BWROG will decide on its path forward for guidance on problematic debris outside of the spherical ZOI after the staff dispositions its concerns.

Issue No. 11, Near Field Effects and Scaling

The third presentation was on Issue No. 11, Near Field Effects (NFE) and Scaling. See ADAMS Accession No. ML102800112 for this. This presentation provided discussion on issue overview, URG guidance on NFE and scaling for BWRs, GSI-191 guidance on NFE and scaling for PWRs, resolution strategy, and next steps.

Settling of debris on the test tank floor was observed in some of the PWR strainer tests. When settling occurs during testing, some of the debris does not deposit on the test screen raising concern that the measured head loss may be non-conservative. The BWROG stated that they are currently gathering information on this topic and that several strainer vendors have indicated that settlement did not occur during their tests. The staff requested evidence that significant settling did not occur in the earlier BWR testing, and stated that evidence could be photographic or could be in the form of written test reports that state that settling was searched for and was not observed. Alternately, if settling of debris occurred during testing, the staff would expect adequate justification that the settlement observed during the testing was prototypical with respect to actual plant conditions.

The staff stated that this issue should also address extrapolation of head loss results to mission time. The BWROG agreed to do this.

The staff reminded the BWROG that the potential for circumscribed debris beds should be addressed. A circumscribed debris bed can form if the quantity of debris accumulating on a complex strainer exceeds the quantity needed to fill interior strainer volumes or bridge the surface areas leading to these volumes. In this case, the head loss can be driven by the layer of debris that accumulates on the reduced surface area presented by only the strainer's external surfaces. Scaling for circumscribed debris beds is important because, depending on the size of the test strainer, circumscribed scaling parameters can be different and may lead to a more limiting condition than a thin debris bed that accumulates evenly over the entire strainer surface area.

Action 12: The BWROG stated that it plans to do a survey of BWR strainer vendors and licensees on how near field effects were addressed, and that it will seek staff feedback before sending it out. The draft survey is to be provided before the November meeting, and discussed then. The staff stated that the survey should address methods used for searching for boreholes and bed degradation as a basis to support the validity of temperature scaling.

Other

The staff stated that the Level 3 schedule previously provided by the BWROG (ADAMS Accession No. ML102520050) needs to be updated. The BWROG agreed and stated the schedule would be a living document, updated monthly "as long as it makes sense to do that."

The staff stated that future discussions would be facilitated if the BWROG would clearly state at the beginning of each presentation what the BWROG hopes to achieve with regard to the issue. The BWROG agreed to do this.

There were no questions from members of the public and the meeting was adjourned.

Enclosure 1:
List of Attendees

Enclosure 2:
Meeting agenda

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Enclosure 2:
Meeting agenda

DISTRIBUTION: See next page
ADAMS ACCESSION NUMBERS: ML102800089(Package)
ML102800152(Memo)

OFFICE	PM:DPR:PLPB	LA:DPR:PLPB	BC:DCI:CSGB	BC:DSS:SSIB	PM:DPR:PLPB
NAME	JGolla	EHylton	RTaylor	SBailey	JGolla
DATE	10/07/2010	10/08/2010	10/14/2010	10/14/2010	10/18/2010

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List of Attendees for September 22, 2010,
Meeting With The BWROG

Tony Borger	BWROG/PPL Susq
Peter Mast	Alion
Tom Morales	BWROG/Energy NW
Gilbert Zigler	Alion
Phil Rush	MPR Associates
Rob Whelan	BWROG/GEH
Larry Fleischer	GEH
Alan Fanning	GEH
Bill Slagle	Westinghouse
Matt Yoder	NRC
Steve Smith	NRC
Rob Taylor	NRC
Mike Scott	NRC
Stew Bailey	NRC
John Burke	NRC
John Lehning	NRC
Greg Makar	NRC
Joe Golla	NRC
Nancy Chapman*	Bechtel
George Strambeck*	Westinghouse

*Attended via telecon

Enclosure 1

MEETING AGENDA
U.S. NUCLEAR REGULATORY COMMISSION (NRC)
MEETING WITH BOILING WATER REACTOR OWNER'S GROUP

September 22, 2010

8:30-8:45	Introductions and overview	NRC/BWROG
8:45-9:45	Followup of items from August 10/11, 2010, meeting	NRC/BWROG
9:45-10:30	Spherical Zone-of Influence	BWROG
10:30-10:45	Break	
10:45-12:00	Spherical Zone-of-Influence	BWROG
12:00-1:00	Lunch	
1:00-1:30	Spherical Zone-of-Influence	BWROG
1:30-1:50	Discussion and Feedback	NRC/BWROG
1:50-2:00	Opportunity for public comment	NRC/Public
2:00-3:00	Assessment of Coatings	BWROG
3:00-3:15	Break	
3:15-4:50	Assessment of Coatings	BWROG
4:50-5:00	Opportunity for public comment	NRC/Public

September 23, 2010

8:30-8:50	Discussion and Feedback	NRC/BWROG
8:50-9:00	Opportunity for public comment	NRC/Public
9:00-10:30	Near Field Effects and Scaling	BWROG
10:30-10:45	Break	
10:45-11:30	Near Field Effects and Scaling	BWROG
11:30-11:50	Discussion and Feedback	NRC/BWROG
11:50-12:00	Opportunity for public comment	NRC/Public

Enclosure 2

Memorandum to Stewart N. Bailey from Joe Golla, dated October 18, 2010

SUBJECT: SUMMARY OF PUBLIC MEETING ON SEPTEMBER 22, 2010, WITH THE BWROG

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