

November 4, 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 OCTOBER 20, 2010, PUBLIC MEETING WITH THE  
BOILING WATER REACTOR OWNER'S GROUP (BWROG)

On October 20, 2010, U.S. 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, October 20, 2010, by consensus of all participants. In addition, the order on the agenda was changed to accommodate the attendance of staff members. 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) in package Accession No. ML103010398.

This was the third of four monthly meetings being held August through November 2010, in order for the BWROG to present to the NRC its 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 held on September 22, 2010 (summary at ADAMS Accession No. ML102800152), three were addressed at a meeting held on August 10 and 11, 2010 (summary at ADAMS Accession No. ML102360056), and it is planned that three will be addressed at a meeting scheduled for November 17, 2010. The twelve technical issues were initially presented to the BWROG by the NRC staff at a public meeting held on November 27, 2007 (summary at ADAMS Accession No. ML080240235). The three issues discussed at this meeting were: Debris Characteristics, Debris Head Loss Predictions, and Downstream Effects for Components and Systems.

Mr. Stewart Bailey, Chief, Safety Issues Resolution Branch (SSIB), Division of Safety Systems (DSS), Office of Nuclear Reactor Regulation (NRR), and the NRC project manager for this effort, made opening remarks. Afterward, Mr. Steve Scammon, ECCS Suction Strainers Committee Chairman for the BWROG, presented the status of Action Items from the meetings held on August 22 and 23 and September 22, 2010.

### **Review of Action Items Due This Meeting**

**Actions 2 and 3: Open.** (Air jet testing, 40% reduction in destruction pressure). New Action to address Actions 2 and 3 as of the September meeting was for the BWROG to develop a written position on its views with regard to its own slide show presentation at the August meeting, and in response to comments made by the NRC staff at the August meeting as to whether the 40 percent reduction in material destruction pressure should apply to BWRs. Specifically, the NRC 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). The BWROG's draft written position was provided to the staff on October 17, 2010 and is in ADAMS as Accession No. ML103000334.

**Additional Action:** The BWROG is to identify operating process parameters and relative amounts of subcooling and how these relate to jet pressures. This is due December 15, 2010.

**Additional Action:** The NRC staff stated it will decide on a path forward for this issue and indicated that the issue might be treated at a public meeting with interested industry participants from both the BWR and pressurized water reactor (PWR) communities since this issue impinges on both. The NRC staff's decision on path forward is due November 17, 2010.

**Action 5: Open.** Zone of influence (ZOI) of protective coatings: The BWROG is to provide a detailed plant sampling plan. Due October 20, 2010.

The BWROG changed its plan. Instead of developing a "bounding plant sample" for comparison purposes, it will now evaluate qualified coatings load with new coatings ZOI either by plant walkdown or by document review. If done by plant walkdown, the BWROG will identify six plants based on outage and walkdown availability. The BWROG stated that two walkdowns would be done for each of the three operating BWR containment designs (i.e., Mark I, II, and III). The staff stated that this appeared to be a reasonable approach, however, the results of the walkdowns will be reviewed to determine the need for additional plant-specific analyses.

**New Action:** The BWROG will provide to the NRC staff information on the scope of the walkdowns of the six plants. The due date for this is November 17, 2010.

**Action 7: Closed** Chemical Effects: The BWROG will provide interim reactive materials results to the staff by October 20, 2010.

The BWROG presented to the NRC staff highlights of results of a survey conducted during the summer of 2009 of reactive materials. The survey results showed a wide range of plant materials and material combinations. The staff stated that a bounding chemical effects test, or even a reduced number of tests, may be difficult to justify given the diversity in the survey sample.

### **Technical Issues this Meeting (October)**

Following review of Action Items, the BWROG made presentations on the three technical issues on the agenda. (Note that issue numbers correspond to those in the November 27, 2007, meeting summary noted above).

#### **Issue No. 10, Debris Characteristics**

The first presentation was on Issue No. 10, titled "ECCS Suction Strainers, Debris Characteristics." This presentation provided discussions on issue overview, problem statement, objective, Utility Resolution Guide (URG) assessment, Generic Safety Issue (GSI)-191 approach, proposed resolution, relationship to other issues, and next steps and milestones. The stated objective of the BWROG to address this issue is to develop a document that identifies acceptable debris characteristics for use in BWR strainer qualification analysis and testing. An Action Item identified during the discussion of this issue is the following:

**Action 13:** It is intended that plants will compare their current analyses to the above mentioned, yet-to-be-developed guidance document, and address any gaps. The action is for the BWROG to also develop an additional guidance document that addresses how utilities will resolve differences. The BWROG committed to a finish date for this of June 2011 (2Q2011).

#### **Issue No. 3, Debris Head Loss**

The second presentation was on Issue No. 3, titled, "Debris Head Loss Correlations." This presentation provided discussions on regulatory and issue summary, objective, resolution strategy, relationships to other issues, and next steps and milestones. The issue here is that semi-empirical debris head loss correlations that were likely used in the design of current BWR ECCS suction strainers may not have accurately predicted head losses for thin beds or debris beds composed of "problematic" debris, i.e., microporous and calcium silicate debris. The BWROG intends to resolve this issue using a three-part strategy. This strategy includes assessing the BWR plants' existing analyses, developing a test program to include thin bed testing, and developing supplemental guidance on head loss assessment as needed on a plant-specific basis.

**Action 14:** Slide 14 of the presentation on this is unclear about when the NRC staff would see the surveys that will be developed that will be utilized in developing the supplemental guidance. The Action is for the BWROG to clarify when the NRC staff would get to see the survey and see the survey results. Due date for this is November 17, 2010.

#### **Issue No. 1, Downstream Effects – Systems and Components**

The third presentation was on Issue No. 1, "Downstream Effects – Systems and Components." This presentation provided discussion on issue overview, BWROG objective, the URG assessment and the GSI-191 approach, proposed resolution, relationships to other issues, and next steps and milestones. The issue for BWRs is that downstream effects evaluations of recent years (i.e., for PWRs), questions the technical adequacy of previous evaluations.

The BWROG's objective is to develop a Licensing Topical Report (LTR) that defines methods and assumptions for BWR downstream effects analyses. It is the intention of the BWROG to acquire rights to methods detailed for PWRs in LTR WCAP-16406-P for use in developing the BWR-specific methods LTR. There were no action items identified for this issue.

**Other:**

**Action 15:** During discussions of the debris characteristics issue, the overall resolution method for addressing all BWR suction strainer performance issues being proposed by the BWROG was discussed. It was noted that many new guidance documents are to be developed in pursuit of resolution of the issues. The BWROG stated that the end result of the new guidance documents will be an update to the URG with more detailed guidance retained in Topical Reports and technical papers. The Action noted is for the BWROG to clarify what will be incorporated into the URG update and what will reside in separate Topical Reports and technical papers. The due date for this is November 17, 2010.

This will be a discussion topic at the November 17, 2010, meeting.

**Action 16:** The NRC staff will provide written feedback on the BWROG's overall process for resolving the BWR ECCS suction strainer issues. This will be provided to the BWROG after the November 17, 2010, meeting.

**Action 17:** The NRC will provide feedback to the BWROG regarding the detailed schedule provided by the BWROG (schedule at ADAMS Accession No. ML102520050).

The BWROG representatives stated BWROG is committed to a 2015 end date for this effort.

The BWROG will adjust its schedule to allow more time for the NRC staff to review the guidance documents being produced for this effort. The expectation is that this will only impact interim milestones and not the 2015 end date.

There were no members of the public present at this meeting.

Enclosures: 1. List of Attendees  
2. Meeting agenda

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- 2. Meeting agenda

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**ADAMS ACCESSION NUMBERS:** ML103010398(Package)  
ML103010393(Memo)

OFFICE	PM:DPR:PLPB	LA:DPR:PLPB	BC:DCI:CSGB	BC:DSS:SSIB	PM:DPR:PLPB
NAME	JGolla JG	DBaxley DB	RTaylor RT	SBailey	JGolla
DATE	11/3/2010	11/2/2010	11/3/2010	11/4/2010	10/4/2010

**List of Attendees for October 20, 2010,**

**Meeting with the Boiling Water Reactors Owners Group (BWROG)**

Tony Borger	BWROG/PPL Susq
Peter Mast	Alion
Michael Crowthers	PPL/Susquehanna
Gilbert Zigler	Alion
Brad Tyers	BWROG/Exelon
Rob Whelan	BWROG/GEH
Larry Fleischer	GEH
Alan Fanning	GEH
Steve Scammon	BWROG/Energy NW
Ralph Architzel	NRC
Eric Miller	NRC
Ervin Geiger	NRC
Bruce Lin	NRC
Harry Wagage	NRC
Matt Yoder	NRC
Steve Smith	NRC
Rob Taylor	NRC
Stew Bailey	NRC
John Burke	NRC
John Lehning	NRC
Joe Golla	NRC

Enclosure 1

## MEETING AGENDA

### U.S. NUCLEAR REGULATORY COMMISSION (NRC)

#### MEETING WITH BOILING WATER REACTOR OWNER'S GROUP

##### **October 20, 2010**

8:30-8:45 a.m.	Introductions and overview	NRC/BWROG
8:45-10:00 a.m.	Followup of action items from August and September meetings	NRC/BWROG
10:00-10:15 a.m.	Break	
10:15-11:50 a.m.	Downstream effects for components and systems	NRC/BWROG
11:50-12:00 p.m.	Opportunity for public comment	NRC/Public
12:00-1:00 p.m.	Lunch	
1:00-2:00 p.m.	Downstream effects for components and systems	NRC/BWROG
2:00-3:00 p.m.	Debris head loss predictions	NRC/BWROG
3:00-3:15 p.m.	Break	
3:15-4:50 p.m.	Debris Head Loss Predictions	NRC/BWROG
4:50-5:00 p.m.	Opportunity for public comment	NRC/Public

##### **October 21, 2010**

8:30-9:00 a.m.	Debris head loss predictions	NRC/BWROG
9:00-10:30 a.m.	Debris Characteristics	NRC/BWROG
10:30-10:45 a.m.	Break	
10:45-11:50 a.m.	Debris Characteristics	NRC/BWROG
11:50-12:00 p.m.	Opportunity for public comment	NRC/Public

Memorandum to Stewart N. Bailey from Joe Golla dated November 4,2010

SUBJECT: SUMMARY OF PUBLIC MEETING ON OCTOBER 20, 2010, WITH THE  
BOILING WATER REACTOR OWNER'S GROUP

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Robert Taylor  
Stewart Bailey  
Matthew Yoder  
Sher Bahadur  
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