September 8, 2010

MEMORANDUM TO: Michael L. Scott, Chief
Safety Issues Resolution Branch
Division of Safety Systems
Office of Nuclear Reactor Regulation

FROM: Joseph A. Golla, Project Manager **/RA/**
Generic Communications and Power Uprate Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF AUGUST 10 & 11, 2010, PUBLIC MEETING WITH THE BOILING WATER REACTOR OWNER'S GROUP (BWROG)

On August 10 & 11, 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. 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. ML102360067.

This was the first of four monthly meetings that will be held during the months of 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, and it is planned that three 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 the meeting summary). The three issues discussed at this meeting were "Zone of Influence (ZOI) Adjustment for Air Jet Testing," "ZOI for Protective Coatings," and "Chemical Effects."

Mr. Michael Scott, 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. This was followed by a brief overview presentation given by Mr. Steve Scammon, ECCS Suction Strainers Committee Chairman of the BWROG. The title of this presentation is "ECCS Suction Strainers Overview of Pressurized Water Reactors (PWR) and BWR NSSS Conditions & Containment Features."

All three presentations on the technical issues discussed at this meeting were given by Mr. Tony Borger, ECCS Suction Strainers Committee Source Term Vice Chairman, BWROG. The first presentation was on Issue No. 7, titled "ECCS Suction Strainers, ZOI Adjustment for Air Jet Testing." (Note the issue numbers correspond to those in the November 27, 2007, meeting summary noted above.) This presentation provided discussions on issue overview and history, PWR vs BWR differences, debris generation methodology, jet impact testing, some of the thermodynamics of steam and steam/water jets, and resolution strategy. Action Items identified during the discussions of this presentation are the following:

Issue No. 7, ZOI Adjustment for Air Jet Testing Action Items

Action 1: The staff is to validate information we have on ECCS suction strainer configurations to determine whether additional information is needed on this subject in the near future.

The staff stated that they agree with the industry position on relative stagnation pressures of media.

Action 2: The BWROG is to provide supporting basis for the conclusion that stagnation pressure accounts for differences in media. Due September 22, 2010.

Action 3: The staff is to perform an evaluation of the air jet testing described in the Utility Resolution Guide (URG) and Ontario Power Generation (OPG) 2004 testing to validate the position in its safety evaluation (SE) of NEI 04-07. (The staff position in the SE was that destruction pressures used for ZOI determination in ECCS suction strainer performance evaluations must be reduced by 40% from those ascertained by the air jet tests to account for the difference between air jet test destructive properties and the destructive properties of an actual two-phase blowdown from a high-energy line break in a power plant.) The staff is to verify whether the subcooling that was present in the OPG two-phase testing was significant. Due September 22, 2010.

Action 4: The BWROG is to verify penalties/credits taken in the URG. Due September 22, 2010.

The second presentation made by Mr. Borger was Issue No. 8 titled "ECCS Suction Strainers, ZOI of Protective Coatings." This presentation provided discussion on issue overview and history, treatment of qualified coatings loads for BWRs, technical and regulatory differences between BWRs and PWRs, resolution strategy, and proposed schedule of milestones. Action Items identified during the discussions of this presentation are the following:

Issue No. 8, ZOI of Protective Coatings Action Items

Action 5: The BWROG is to provide a detailed plant sampling plan. Due October 20, 2010. The staff is to provide feedback two weeks later.

Staff stated that a sampling approach may work. If the BWR sampling result shows significant margin compared with the URG, then possibly no plant-specific evaluations would be needed. Otherwise, they may be needed.

Action 6: The BWROG is to provide a calculation comparing spherical ZOIs for BWRs and PWRs based on the RCS pressure differences. Due by March 31, 2011.

The BWROG stated that degraded qualified coatings and unqualified coatings assessment will be covered in Issue 5, "Assessment of Coatings." Debris characteristics for this material will be covered in Issue 10, "Debris Characteristics." Staff stated that the URG position on unqualified coatings was that they don't transport. The staff however, disagreed with this in the safety evaluation (SE) of the URG. The staff position in the SE for NEI 04-07 was that unqualified coatings fail as particulate and transport.

The third presentation made by Mr. Borger was Issue No. 4, titled "ECCS Suction Strainers Chemical Effects." This presentation provided discussion on issue overview and history, PWR source materials, precipitates, post loss of coolant accident (LOCA) coolant chemistry, resolution strategy, and next steps/path forward milestone dates. Action Items identified during the discussions of this presentation are the following:

Issue No. 4, Chemical Effects Action Items

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

The staff cautioned that the BWROG should have a good chemical effects knowledge base before attempting refinements.

The staff noted that materials other than zinc and iron could contribute to chemical effects. The BWROG indicated they plan to evaluate other materials.

The staff stated that plants should have a sound basis for maximum pH with standby liquid control system (SLCS), and that pH would not be stable following a LOCA, absent SLCS.

The BWROG stated that contrary to NUREG/CR-7011, the amount of boron in a SLCS BWR is about an order of magnitude less than for a PWR. (The title of NUREG/CR-7011 is, "Evaluation of Treatment of Effects of Debris in Coolant on ECCS and CSS Performance in Pressurized Water Reactors and Boiling Water Reactors.")

Slide no. 14, "Resolution Strategy, BWR Considerations," of the chemical effects presentation, item 1, states a BWR consideration as "one that requires assessment of two environments, with and without a buffer." Staff stated that there would be more than two environments, given plant-specific conditions.

Action 8: The staff stated that holdup volumes could result in hotter temperatures where chemical effects could occur. The BWROG stated this is not likely an issue due to small volumes and the volumes not communicating with the suppression pool. The staff stated the BWROG should evaluate this. The action is for the BWROG to evaluate this and provide results to the staff by December 31, 2010.

The staff stated that chemical effects on head loss vary and depend on the nonchemical debris bed, making selection of representative plants challenging. The staff is cautious about whether the approach described on slide 20 will be successful. This strategy is highly dependent on the outcome of the future head loss correlation discussion.

Action 9: The BWROG is to provide a letter to NRC detailing project plan sub-items/tasks with linkages (Gantt Chart or equivalent information) as agreed to in June 3, 2010 meeting. Due by September 15, 2010.

The Staff noted that the air jet issue resolution schedule has been delayed up to six months. The BWROG indicated this was largely due to resource redirection due to the TRACG/SAFER issue and due to change in plan to focus on nearer-term interactions with staff. The BWROG stated that the project end date of 2Q2015 has not changed.

The BWROG stated that some important communication tasks have been accelerated at the NRC staff's request and that these accelerations offset associated delays in other tasks (e.g., ZOI for coatings). There were no questions or comments from the public and the meeting was adjourned.

Enclosure 1: List of Attendees, Enclosure 2: Meeting agenda

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Enclosure 1: List of Attendees, Enclosure 2: Meeting agenda

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ADAMS ACCESSION NUMBERS: ML102360067(Package)
ML102360056(Memo)

OFFICE	PM:DPR:PLPB	LA:DPR:PLPB	BC:DCI:CSGB	BC:DSS:SSIB	PM:DPR:PLPB
NAME	JGolla JG	EHylton EH	RTaylor (MYoder for)	MScott	JGolla
DATE	8/24/2010	8/24/2010	8/27/2010	9/8/10	9/8/10

List of Attendees for August 10 & 11, 2010,
Meeting With The BWROG

Steve Scammon	ENW/BWROG
Tom Michener	PNNL
Rob Whelan	GEH/BWROG
Rob Choromokos	Alion
Pete Mast	Alion
James Furman	Alion
Michael Crowthers	PPL Susquehanna/BWROG
Tom Morales	Energy NW Columbia
Lawrence Fleischer	GEH
Tony Borger	PPL Susquehanna/BWROG
Paul Klein	NRC
Rob Taylor	NRC
Mike Scott	NRC
Matt Yoder	NRC
Paul Klein	NRC
Nageswar Karipineni	NRC
Steve Smith	NRC
John Burke	NRC
Nageswara Karipineni	NRC
Greg Makar	NRC
Eduardo Sastre	NRC
Joe Golla	NRC
Terry McIntyre*	GEH
Deann Raleigh*	Scientec

*Attended via telecon

Enclosure 1

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

August 10, 2010

8:30-8:40	Introductions	NRC/BWROG
8:40-10:30	Zone-of-Influence Adjustment for Air Jet Testing	BWROG
10:30-10:45	Break	
10:45-11:20	Zone of Influence Adjustment for Air Jet Testing	BWROG
11:20-11:50	Discussion and Feedback	NRC/BWROG
11:50-12:00	Opportunity for public comment	Public/NRC
12:00-1:00	Lunch	
1:00-3:00	Zone-of-Influence for Protective Coatings	BWROG
3:00-3:15 Break		
3:15-4:20	Zone-of-Influence for Protective Coatings	BWROG
4:20-4:50	Discussion and Feedback	NRC/BWROG
4:50-5:00	Opportunity for public comment	Public/NRC

August 11, 2010

8:30-10:30	Chemical Effects	BWROG
10:30-10:45	Break	
10:45-11:20	Chemical Effects	BWROG
11:20-11:50	Discussion and Feedback	NRC/BWROG
11:50-12:00	Opportunity for Public Comment	Public/NRC

Enclosure 2

Memorandum to Michael Scott from Joe Golla, dated

SUBJECT: SUMMARY OF PUBLIC MEETING ON AUGUST 10 & 11, 2010, WITH THE BWROG

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Eduardo Sastre
Matthew Yoder
Sher Bahadur
Stephen Smith
William Ruland
James Vail
Rob Whelan (Robert.Whelan@ge.com)