

February 17, 2011

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

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

SUBJECT: SUMMARY OF JANUARY, 27, 2011, PUBLIC MEETING ON STATUS
AND PATH FORWARD FOR GENERIC SAFETY ISSUE 191

On January 27, 2011, U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with the Nuclear Energy Institute (NEI) and representatives from the nuclear industry to discuss the status and path forward for resolving Generic Safety Issue 191 (GSI-191). GSI-191 is concerned with the impact of debris on the performance of the emergency core cooling system (ECCS) and containment spray system during the recirculation phase following a loss-of-coolant accident (LOCA) in a pressurized-water reactor (PWR). The notice and agenda for this meeting can be obtained from the NRC Agencywide Documents Access and Management System (ADAMS) at Accession Number ML110210494.

NRC Staff Presentation

The NRC staff began the meeting with a presentation (ADAMS Accession No. ML110320620) on the status of GSI-191 and how the staff will implement the December 23, 2010, Staff Requirements Memorandum (SRM) on SECY-10-0113. The staff emphasized that in-vessel effects is one of the major open issues that needs to be resolved to close GSI-191. The staff noted that the SRM also directs staff to resolve the discrepancy between the NRC and industry dose estimates. The staff will need support from industry to address this concern.

The SRM directs NRC staff to explore alternatives for resolving GSI-191 that could include changes in policy. Examples of such alternatives include risk-informing the issue (e.g., using the proposed 10 CFR 50.46a rule, using a no-transition-break-size approach) or treating debris clogging as a beyond design basis event. The staff stated that using a no-transition-break-size approach would require justification since this is not addressed with the proposed 10 CFR 50.46a rule. These alternatives may provide more flexibility to plants that are nearly completed the activities for GSI-191 if they have a small margin. The staff asked industry to provide ideas and agreed to work with them on alternative approaches to resolving GSI-191.

The NRC staff stated that alternatives which have previously been dismissed for policy reasons are open for discussion as it looks at possible policy changes. The staff stated that it will

consider a leak-before-break approach in the context of a risk-informed resolution, but not under General Design Criterion 4.

Many plants have already made commitments to the NRC regarding the resolution of GSI-191. The staff informed the industry that it expects any changes in such commitments to be provided to the NRC in writing with an appropriate basis. The staff recommended that such proposals be discussed with staff before they are submitted to ensure that submittals are complete.

An industry representative asked the NRC staff how it will document the closure of GSI-191 for each plant. The representative wanted to ensure that the licensing basis with respect to GSI-191 is sufficiently defined for facilities to avoid problems in the future. The staff agreed to consider adding closure documentation on its plan for a path forward on GSI-191.

The staff also stated that it may brief the Commission Assistants more frequently than every six months, as required by the SRM.

Testing Status and Plans

Mo Dinger, representing the PWR Owners Group (PWROG), gave two presentations on the testing status and plans. The first presentation (ADAMS Accession No. ML110320626) was on the in-vessel effects testing referred to as the Long-Term Cooling Considerations (LTCC) Project. As stated in the presentation, the industry is working on two paths forward for this project. The PWROG is still working with facilities to ensure that plants understand the testing as it goes forward, including conducting surveys to determine if the test parameters are bounding.

The staff appreciated the aggressiveness of the PWROG's proposed schedule for the LTCC Project. The staff noted that it still needs to understand the past unexpected results in the in-vessel effects testing. The industry indicated that it would like to meet soon to discuss the testing path forward.

The second presentation (ADAMS Accession No. ML110320637) by the PWROG was on the Zone-of-Influence (ZOI) Project. The presenter stated that for the target testing if the jacketing on insulation tears that is considered a failure. In response to a question from NRC staff, the presenter stated that additional testing could be done at a greater distance than what is listed in the slides. However, the distances identified are based upon what industry experts recommended.

With respect to the ZOI testing, the staff stated that it needs the industry to provide its analytical model. The industry representative indicated that the schedule for model development has not been determined, but the PWROG plans to provide the model to the NRC well before May. The PWROG intends for the new instrument tests to supplement the American National Standards Institute model.

The industry and NRC representatives agreed to work together to ensure that the testing is done in a proper manner. The expectation would be that most issues would be resolved prior to the topical report being issued in December 2011. The PWROG also stated that a draft topical report will be provided, but this is not indicated on its schedule.

The NRC staff noted that the SRM expects that certain testing be completed in 2011. The staff needs to know how such testing informs the path forward. However, the staff understands that not all plant-specific testing may be completed within this schedule.

Operability Guidance Development

John Butler, representing NEI, led a discussion of the industry's need for operability guidance for GSI-191. He indicated that this is an important topic for industry as it affects plants now. Specifically, several plants have discovered conditions within containment that were not considered in the analysis used to resolve GSI-191. Currently there is not specific operability guidance related to GSI-191, so the industry would like draft guidance by the spring outages to avoid unnecessary actions when there are unexpected conditions found in containment.

NEI did not provide specifics, but gave several examples of what the operability guidance may include. These examples included compensatory measures, credit for conservatism, and incorporation of risk information.

The NRC staff responded that it is willing to discuss this with industry and it understood the problem. The staff noted that it needed a more specific proposal from industry and it would need to be adequately justified. The staff stated that any operability guidance would need to be simple so that it was clear what decision would be made. The staff also recommended that a conservative approach be taken to avoid prolonged discussions between the NRC and industry over the basis for an operability determination.

Risk-Informed Approaches

Rick Grantom, representing South Texas Project (STP), gave a presentation (ADAMS Accession No. ML110320643) on STP's plans for developing a risk-informed approach to resolve GSI-191. STP did not present the technical backup slides, but they were provided to participants. STP's approach will obtain the core damage frequency and large early release frequency associated with LOCAs that require ECCS recirculation. This approach will be consistent with NRC Regulatory Guide 1.174, and will address defense-in-depth and safety margin. STP anticipates that this project will advance the state of the art for risk evaluations.

STP is still working on a licensing strategy and recognizes that exemptions may be necessary. STP anticipates that its efforts would lead to a more streamlined approach that other licensees could use in the future.

The NRC staff noted that the state-of-the-art approach proposed by STP may be challenging to review. Additional challenges may result from trying to make the model too realistic as opposed to taking a more conservative approach. STP understood the concern and said it is trying to use standard codes and are confident that they will have a good plant-specific model. Additionally, STP hopes to work with the NRC to help identify the most important or challenging areas. STP plans to have the areas where there are large uncertainties by the third quarter of this year. STP also notes that there may be some uncertainties in the phenomenological model, but these may not have a big impact on risk.

Future Plans

The kickoff meeting with the NRC and STP is planned for February 22, 2011. STP will also be presenting at the NRC's 2011 Regulatory Information Conference.

The PWROG agreed to discuss the in-vessel effects testing with NRC staff sometime during the week of February 28, 2011. The staff stated that it would also like to see a detailed schedule for testing as well as a status update on the ZOI testing during this meeting.

The PWROG stated it would provide more information on its plans for developing an analytic model during the week beginning January 31, 2011.

NEI stated it needs to provide a document to the NRC that would lead to guidance on operability determinations. NEI agreed to discuss possible dates for a meeting on operability determinations in about a week.

Sometime around the week of February 28, 2011, the NRC and NEI agreed to have a meeting to discuss the overall plans for resolving GSI-191 including proposals for alternative approaches.

Conclusion

Sher Bahadur of the NRC ended the meeting with a statement about the importance of this issue. He stated that the NRC's understanding will be improved if we work with industry. This meeting is the first step at looking at the SRM and determining what actions need to be taken. He also noted that NRC resources are limited, so early communication of issues is important.

Enclosure: List of Attendees

cc: John Butler, NEI

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ADAMS ACCESSION NUMBER: ML110450130

OFFICE	LA:DPR:PGCB	PM:DPR:PGCB	BC:DSS:SSIB	PM:DPR:PGCB
NAME	CHawes	BPurnell	SBailey	BPurnell
DATE	2/17/11	2/17/11	2/17/11	2/17/11

List of Participants for January 27, 2011, Public Meeting

Name	AFFILIATION
John Burke	NRC
Sher Bahadur	NRC
Ralph Architzel	NRC
Clint Ashley*	NRC
Stewart Bailey	NRC
Tim Collins*	NRC
James Beall	NRC
Steve Smith	NRC
Blake Purnell	NRC
Mike Franovich	NRC
Bill Ruland	NRC
John Lubinski	NRC
Steven Laur	NRC
Andrew Howe	NRC
Stephen Dinsmore	NRC
Robert Taylor	NRC
Samson Lee	NRC
Paul Klein*	NRC
Mathew Yoder*	NRC
Chris Jackson*	NRC
Rod Cook	TVA
Mel Arey	Duke Energy/PWROG
Tim Bowman	STPNOC
Matt Brandes	Ameren
Dan Brosnan	PGE (Diablo Canyon)
John Butler	NEI
Jimmy Paul Cash	Southern Nuclear
Robert Choromokos	Alion
Wendi Croft	Exelon
Tim Croyle	Westinghouse
Mo Dinger	WCNOC
Andre Drake*	Constellation
Rich Faix	NextEra Energy (Seabrook)
Chuck Feist	Luminant Power
Gregory N. Ferguson	Entergy

Enclosure

Fariba Gartland	AREVA
Joseph K. Gasper	OPPD
George Goralski*	Entergy
Rick Grantom	STPNOC
Ludwig Haber	Alden
Mark A. Harris	Entergy (ANO)
Eric Hendrixson	Dominion
Mehrdad Hojati	SCE
Tom Kendall	NextEra Energy
Stephen Kinsey*	MPR
Paul Leonard	FPL
Russ Lytton	Duke Energy
John Maruschak	Westinghouse
Kiran Mathur	PSEG
Wes McGoun	Progress Energy
Gary Miller	Dominion
Kara Morgan	Luminant Power
Valerie Myers	Entergy
Ken Petersen	WCNOC/STARS
Bob Peterson	Sargent & Lundy
Carl Prather	IMI Nuclear
Ann Marie Ryan	FirstEnergy
Jay Slaggert	AEP (Cook Plant)
Aaron Smith	Enercon
Jack Stringfellow	SNC
Glen A. Thomas	AREVA
Ari Tuckman	Duke Energy
Steven Unikewicz*	Alion
Kip Walker	Enercon
Rob Whelan	GE-Hitachi
Pete Wilkens	Southern California Edison (SONGS)
Gil Zigler	Alion
Tony Nowinowski	Westinghouse/PWROG
Scott Kirk	Southern Nuclear

Ernie Kee	STPNOC
Nancy Chapman*	Bechtel Power Corp.
Timothy Sande*	Alion Science and Technology
Dana Knee*	Dominion
Robert Jaquith*	Westinghouse Electric Co.
Ray Schnider*	Westinghouse Electric Co.
Steven Dolly*	Platts Nuclear
Susan Baier*	Westinghouse Electric Co.
Megan Stachowiak*	Alion Science and Technology
Mark Harriman*	Constellation Energy (Ginna Station)
Elmira Popova*	University of Texas at Austin
Mike Blake*	Nuclear News
Yassin Hassan*	Texas A&M University
Rodolfo Vaghetto*	Texas A&M University
Bill Cross*	FPL

*Participated via phone

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Steven Laur
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Samson Lee
Mathew Yoder
Chris Jackson