January 22, 2014

MEMORANDUM TO: Sunil D. Weerakkody, Chief ***/RA/***
PRA Operations and Human Factors Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: See-Meng Wong, Senior Reactor Analyst
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SUBJECT: SUMMARY OF PUBLIC MEETING HELD ON JANUARY 08, 2014 TO DISCUSS SECTIONS 8 AND 9 OF RISK ASSESMENT STANDARDIZATION PROJECT (RASP) HANDBOOK VOLUME 1, REVISION 2, "RISK ASSESSMENT OF OPERATIONAL EVENTS."

On January 08, 2014, the U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meeting to discuss Sections 8 and 9 of the Risk Assessment Standardization Project (RASP) Handbook, Volume 1, Revision 2, "Risk Assessment of Operational Events" (Agencywide Documents Access and Management System (ADAMS) Accession Number ML13030A049) with industry stakeholders and interested members of the public. The attendance list, meeting agenda and presentation slides are included in the enclosure to this summary.

Summary of Meeting

The purpose of the meeting was to hear comments from interested industry stakeholders and members of the public on alternatives to risk assessment methods documented in Sections 8 and 9 of the RASP Handbook, Volume 1, Revision 2, January 2013. Section 8 of the RASP Handbook, Volume 1, entitled: "Initiating Events Analyses," provides guidance on the use of Conditional Core Damage Probability (CCDP) metric to assess risk significance of licensee performance deficiencies that lead to initiating events during normal power plant operations. Section 9 of the RASP Handbook, Volume 1, entitled: "Human Reliability Analysis," provides guidance on the application of Human Reliability Analysis (HRA) methods in Significance Determination Process (SDP), Accident Sequence Precursor (ASP) and Management Directive (MD) 8.3 event analyses. The meeting announcement can be found under ADAMS accession number ML13351A115.

The public meeting commenced with an NRC staff presentation summarizing the objectives of the RASP Handbook, and NRC expectations of external stakeholder participation in SDP development and changes (ADAMS Accession Number. ML14007AA233). The staff also discussed the desirable attributes of acceptable alternatives to risk assessment methods as currently documented in the RASP Handbook, Volume 1.

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The NRC received feedback from the Pressurized Water Reactor Owners Group (PWROG) and the Nuclear Energy Institute (NEI) on Sections 8 and 9 of the RASP Handbook, Volume 1, respectively. Mr. Roy Linthicum, Chairman of the Risk Management Committee, PWROG, provided a presentation entitled: "Status of Initiating Event SDP White Paper." Ms. Kaydee Kohlhepp, Scientech, provided the NEI presentation entitled: "Industry Priorities for Changes to Section 9, Human Reliability Analysis, Risk Assessment Standardization Project (RASP) Handbook Volume 1, Revision 2." The two industry presentations are available in ADAMS: Accession Nos. ML14013A306 and ML14009A436.

The main discussions between NRC staff and industry participants are summarized below:

1) RASP Handbook Section 8, "Initiating Event Analyses"

   The PWROG has developed a preliminary draft of the industry white paper on a general approach for SDP assessments of initiating events based on defining cause-effect relationships between performance deficiency and the initiating event. This approach would include using Bayesian updating methods if the cause-effect relationships could not be established. Mr. Roy Linthicum expressed that there are open issues with the general approach proffered by the industry group, e.g., how to determine and model the cause-effect relationships, and how to determine appropriate exposure time. An NRC representative agreed that a clear cause-effect relationship between an inspection finding and a degraded condition or event occurrence needs to be established; however, this cause-effect relationship applies to all safety cornerstones of the Reactor Oversight Process (ROP). In addition, the NRC representative discussed some high-level examples to suggest that Bayesian updating methods were not appropriate for SDP analyses and that there is an apparent difference in the way findings are modeled for significance determinations in the initiating events and mitigating systems safety cornerstones. It is anticipated that the PWROG would finalize the industry white paper in March 2014, and submit the document for NRC review at that time. An industry participant suggested that NRC staff conduct a public workshop to review the industry white paper after its submittal. NRC staff agreed to consider having this workshop in early Spring 2014.

2) RASP Handbook Section 9, "Human Reliability Analysis"

   In the area of HRA, Ms. Kohlhepp of Scientech provided an overview of industry comments on several aspects of the RASP Handbook guidance: repair vs. recovery, required HRA expertise, recent advances in HRA, treatment of dependencies, minimum Human Error Probability (HEP), and uncertainty associated with assumed minimum HEPs. The major focus of industry concerns is the use of a minimum value of 1E-6 for joint Human Failure Events (HFEs) in SDP analyses. The industry representatives believe that the use of a minimum joint HEP of 1E-6 is "too conservative if independence can be shown." In response, NRC staff articulated the rationale and technical bases for the guidance on using a minimum joint HEP of 1E-6 with reference to several NRC and industry technical documents, e.g., NUREG-1792, NUREG/CR-6883, ASME RA-S-2001 (Standard for PRA for NPP Applications), INL/EXT-10-18533, NUREG-1921, etc. The industry representative suggested that the RASP

Handbook guidance provide clarifications on the criteria for defining independence when assessing joint HEPs for dependent HFEs, and that the minimum joint HEP should be used only as a screening tool. NEI and industry representatives agreed to provide examples of appropriate use of the minimum joint HEP for screening purposes in SDP analyses, and to engage with NRC staff to develop more robust criteria for defining independence.

As noted above, the action items for the two topics that were discussed at this meeting are:

1) PWROG intends to submit the industry white paper on “Initiating Event SDP” for NRC staff review around March 2014. NRC staff would conduct a public workshop to discuss the industry white paper.
2) NEI and industry representatives would submit for NRC review, examples of appropriate use of the minimum joint HEP for screening purposes in SDP analyses.

No public comment feedback forms were received after the meeting.

Enclosure:

1. Attendance List
2. Agenda
3. Meeting Presentation slides

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Public Meeting on Risk Assessment Standardization Project (RASP) Handbook Sections 8 and 9

January 08, 2014

List of Participants

NRC STAFF
Joseph Giitter
Sunil Weerakkody
See Meng Wong
Jeffrey Mitman
Rani Franovich
Stephen Vaughn
Michelle Kichline
Antonios Zoulis*
Marie Pohida*

OTHER

Victoria Anderson	NEI
James Slider	NEI
Patrick Baranowsky	ERIN
James Curry*	NuScale Power
Kaydee Kohlhepp*	Scientech
Jeff Julius*	Scientech
Mary Presley*	EPRI
Roy Linthicum*	Exelon
Larry Parker*	STARS Alliance
Chris Pupek*	Exelon
William Galyean*	NuScale Power
Camille Zozula*	Westinghouse
Mark Averett*	NextEra
Zhiping Li*	Callaway Nuclear Plant
Michael OKeefe*	Certrec Corporation
Al Haeger*	Certrec Corporation
Michael Keats*	Certrec Corporation

*Participation via teleconference

Enclosure

MEETING AGENDA

TIME	TOPIC	LEAD
8:30 – 8:45 a.m.	Introduction and Opening Remarks	NRC
8:45 – 8:55 a.m.	Opening Remarks	NEI
8:55 – 9:40 a.m.	Industry Concern/Alternative on Section 9 "Human Reliability Analysis" of RASP Handbook Volume 1, Revision 2 (ML13030A049)	NEI
9:40 – 10:00 a.m.	Discussion	All
10:00 – 10:20 a.m.	Break	
10:20 – 11:00 a.m.	Industry Concern/Alternative on Section 8 "Initiating Events Analyses" of RASP Handbook Volume 1, Revision 2 (ML13030A049)	NEI
11:20 – 11:50 a.m.	Discussion	All
11:50 – 12:00 p.m.	Closing Remarks	NRC

Meeting Presentation Slides

1. Sunil Weerakkody, NRC, “Meeting Objective”
2. Roy Linthicum, Exelon, “Status of Initiating Event SDP White Paper”
3. Kaydee Kohlhepp, Scientech, “Industry Priorities for Changes to Section 9, Human Reliability Analysis, Risk Assessment Standardization Project (RASP) Handbook Volume 1, Revision 2”