

October 1, 2007

MEMORANDUM TO: Mark A. Cunningham, Director  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

FROM: Gareth W. Parry, Senior Level Advisor for PRA /RA/  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

SUBJECT: ATTENDANCE AT BWROG IRIR COMMITTEE MEETING

The Boiling Water Reactor Owners Group (BWROG) IRIR (Integrated Risk Informed Regulation) Committee is the principal committee for the BWROG dealing with risk issues. The Committee consists primarily of probabilistic risk assessment (PRA) practitioners from all of the boiling water reactor (BWR) sites in the United States. It has two subcommittees - one dealing with fire protection and fire risk issues, the other with the Regulatory Guide (RG) 1.200 peer reviews being organized on behalf of the BWR fleet. Greg Krueger (Exelon) is the chair of the committee.

Fred Emerson (GE Infra) contacted the U. S. Nuclear Regulatory Commission (NRC) to invite a Division of Risk Assessment representative to attend part of the meeting to participate in an information exchange. The Pressurized Water Reactor Owners Group (PWROG) has for several years invited us to participate in their meetings. However, this is the first invitation to a BWROG meeting in quite some time. Since these interactions are helpful for both sides, I was asked to attend. The BWROG Committee operates a little differently from the PWROG, since it relies more on EPRI to develop technical products, whereas the PWROG uses the vendor, Westinghouse, to a much greater degree for the development of topical reports and other technical products.

The meeting took place in Portsmouth, New Hampshire, from September 11, 2007 to September 14, 2007. I attended part of the afternoon session on September 13, 2007. About twenty of licensee representatives were in attendance, as well as Biff Bradley (NEI). The topics addressed were:

- Implementation of RG 1.200
- Plans for peer reviews of BWR PRAs
- Resource concerns for development and peer review of PRAs, especially fire PRAs
- Aggregation of results from PRAs for the various contributors to risk

In addressing the implementation of RG 1.200, I reiterated the message of NRC Regulatory Issues Summary 2007-06 that the expectation is that a PRA used to support a risk-informed application submitted after January 1, 2008 will use RG 1.200 to demonstrate that the PRA quality is adequate to support the application. One of the attendees asked if there was a definitive list of applications to which this would apply. I reiterated the message given by

Michael Tschiltz at the NEI RG 1.200 workshop, March 27-29, 2007, that this did not apply to the maintenance rule and to NOEDs.

Fred Emerson described the RIS BWROG support for peer reviews of licensee PRAs. The current plan is for two to be completed in 2007, 10 in 2008, and the remainder over the next couple of years. The peer reviews range from a review of the complete PRA, a review of a partial PRA (e.g., only the internal flooding portion), to a focused scope review of specific areas. The majority are leaning towards a full review, since the initial BWROG peer reviews were performed almost 10 years ago. The BWROG is facilitating these reviews by funding the travel for the peer reviewers, and helping with the planning. It is coordinating with the PWROG, to best utilize industry resources. This schedule for peer reviews will be challenging for the development of the fire PRAs to support the implementation of NFPA 805. A fire PRA that will meet the ANS fire PRA standard is based on an internal events PRA that meets the ASME standard as endorsed by RG 1.200. There was general agreement that the NFPA 805 schedule was optimistic.

The BWROG is very concerned about the resources necessary to perform the peer reviews and develop and perform peer reviews of the fire PRAs necessary to support NFPA 805. A comment was made that addressing the PRA quality issue to support the implementation of the MSPI was a major drain on resources, and slowed the industry down considerably in pursuing risk-informed initiatives. There appears to be no clear picture of the degree to which the licensees have completed the resolution of the peer review facts and observations from the peer reviews that were completed several years ago, nor how many licensees have performed and resolved the issues from a self-assessment performed in accordance with NEI-00-02, the PRA Peer Review Process.

Since the issue of aggregation of results from different PRA models (i.e., the combining of the PRA models for internal events, internal fires, external events, etc.) is often raised as an obstacle I requested an explanation of the concern. I emphasized that it is clearly stated in RG 1.174, that a change to the licensing basis should address the risk from all contributors, and therefore it is necessary to add the results from the different contributors. I acknowledged that the NRC staff is aware that the different contributors may have been developed to different levels of detail, and that some contributors may be treated more conservatively than others. However, as stated in RG 1.174, in evaluating the results of the PRA it is necessary to identify the contributors to risk, and address the uncertainty. Greg Krueger suggested the risk ranking of valves as an application where the different level of detail could give incorrect results. As a hypothetical example, he suggested that in developing a fire PRA the analysts may not have taken credit for CRD as an injection system because of the work involved in tracing the cables associated with CRD, whereas they may have taken credit for CRD in the internal events PRA. This would certainly lead to a potential concern about the validity of the ranking. I proposed that the recognition of the differences in detail for the different contributors was essential in assessing the validity of the results, and compensating for known issues when necessary, rather than a reason for not using the PRA models. I further pointed out that the same issue already exists in the internal events PRA model, using the modeling of ATWS sequences as an example. In BER, the ATWS sequences are generally modeled very conservatively, and can contribute significantly to the overall CDF. This issue of aggregation will continue to be a subject for discussion.

M. Cunningham

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