

AP1000DCDFileNPEm Resource

From: Loza, Paul G. [lozapg@westinghouse.com]
Sent: Tuesday, December 15, 2009 7:21 AM
To: Donnelly, Patrick; Jaffe, David
Cc: Seelman, Robert J.; Peck, Donald E.
Subject: Acknowledgement of RAI-SRP18-COLP-22 to -24, -26, -28, -31 to -33, -35, -49, and -52, all R1

Patrick,

I acknowledge receipt for Westinghouse of RAI-SRP18-COLP-22 to -24, -26, -28, -31 to -33, -35, -49, and -52, all R1, listed below. Note I count only 11 new RAIs.

Thanks,

Paul Loza

From: Donnelly, Patrick [mailto:Patrick.Donnelly@nrc.gov]
Sent: Monday, December 14, 2009 10:19 AM
To: Donnelly, Patrick; Loza, Paul G.; Seelman, Robert J.
Cc: Butler, Rhonda; McKenna, Eileen; Hebbard, Sudha; Pieringer, Paul; 'O'Hara, John M'; Higgins, James C; Walker, Jacqwan; Keefe, Molly
Subject: RE: AP1000 - New Draft RAIs - RAI-SRP6.2.2-CIB1-24

Bob & Paul,

Below are 12 new draft RAI revisions on SRP18. These revisions were discussed at a phone conference on 12/7 and again at a public meeting on 12/9.

Please let me know whether they are accepted or whether a conference call is desired.

Regards-

Patrick

RAI-SRP18-COLP-22 R1:

Technical Support Center (TSC): WEC notes that the extent of the HFE design verification will be limited to the design aspects of the TSC that are within the scope of Westinghouse. Please provide what those "design aspects" are or give a reference that contains that information.

Risk Important Maintenance, Test, and Inspection Human Actions (RIMTIS Has):

WEC states that a subset of the "Representative MTIS Activities for Risk-Significant Components" (WCAP-16555, Section 3.3, Reference 3) will be included in a number of the scenarios in ISV. Other MTIS activities in Table 3.3-1 and Table 3.3-2 will be incorporated as scenario complications. Any MTIS activities in WCAP-16555, Section 3.3, which cannot be reasonably incorporated into an ISV scenario will be subject to HFE analysis by another means. This may include assessment against HFE design guidelines, task walkthrough, maintenance trails utilizing manufactured equipment or part of the HFE design verification at plant startup (Reference 4), as appropriate.

This is an acceptable approach. Please provide a Table that shows which of the MTIS items will be addressed by each of the noted V&V methods.

Validation of HRA Assumptions: The ISV does appropriately verify that the RIHAs can be performed within the time window. However, documentation of actual times during the scenarios and then feeding that information back to the HRA to see that assumptions were correct and that recovery and HEPs were appropriately treated seems to be missing.

Please specifically address how this feedback will be accomplished.

RAI-SRP18-COLP-23 R1:

The response states that there is no report to satisfy the requirements of ITAAC #4. However, Rev. 17 has removed ITAAC #4. This is not acceptable particularly since exceptions are being taken from the programmatic level description for V&V. Provide this report and ensure it explicitly states where exceptions are taken to the program plan. As discussed at the public meeting held 12/09/2009 this report can be integrated into the ITAAC closure documents as was done for other ITAACs or into the DCD.

RAI-SRP18-COLP-24 R1:

The response discusses 4 Phases of simulator testing. Please clarify the purposes of Phases 3 and 4. Are either of these the ISV itself or are they preliminary to the ISV? Also, the ISV Plan indicates that “the simulator will satisfy general requirements of Sections 3 and 4 of ANSI/ANS-3.5-1998.” Please describe how the simulator will meet the requirements of ANSI/ANS 3.5, Section 4.2.1, Physical Fidelity and Human Factors.

RAI-SRP18-COLP-26 R1:

In the response WEC states that it was considered to be appropriate (and more realistic) to implement ISV with the crew size that the utilities are planning to adopt than use an alternative minimum crew size. WEC also provides an approach to validate the maximum crew size. These seem to be reasonable approaches, but do not agree with the staffing specified in TR-52.

Please clearly define the max and min crew sizes and update TR-52 to reflect these revised values.

RAI-SRP18-COLP-28 R1:

Are there any high level criteria that can be stated as requiring a retest, such as those listed in Section 6.2.1 of the ISV Plan? The response indicates that each scenario will be run three times. If a trial fails, the HED resolution process is conducted and design changes may be implemented. Independent verifiers will determine if retesting is necessary. It remains unclear what the actual criteria are for determining that the design passes for a given scenario. And it seems as if there may be no retest even if the high-level acceptance criteria from Section 6.2.1 of the ISV Plan are not met. For example, suppose a scenario has one pass and two failures. Each of the two failures results in design changes to resolve the HEDs identified. If the independent verifiers determine that no additional testing is necessary, is the design considered validated for that scenario even though two out of three scenarios were failures? Please clarify how you determine that testing of a particular scenario is successfully completed. Also please address actions when the acceptance criteria in Section 6.2.1 are not met for a given scenario.

Lastly, please define “defense-in-depth systems” as used in the discussion of Priority 1 HEDs.

RAI-SRP18-COLP-31 R1:

NRC requests at least 3 scenarios be fully complete including the observer guides. Does the revision schedule mean that the ISV plan will not be Tier 2*? WEC should also clarify how revisions to the ISV plan (made after the NRC review is completed for design certification of Rev. 17 of the DCD) will be made available to NRC for their review.

RAI-SRP18-COLP-32 R1:

The response identifies five tasks derived from OSA-2 task analyses that will be included in the ISV. However, additional information is needed to close this RAI:

- A. how were the tasks selected (what criteria were used to determine their inclusion in ISV)
 - B. does the addition of these tasks require additional scenarios
 - C. is the performance of these tasks part of the P/F measures or the diagnostic measures?
- Please provide this information.

RAI-SRP18-COLP-33 R1:

The response indicates that the RIHA behaviors to be measured are “the actions identified by the procedures to address the conditions of the scenario.” What does this statement mean? Will all actions specified by the procedure be measured? Will each of the behaviors be categorized as P/F criteria? Please provide these clarifications.

The response also indicates that Rev C of the plan will contain an example of a detailed observer guide for at least one ISV scenario. The staff does not consider a single guide is sufficient to provide reasonable assurance that RIHA’s are being properly assessed.

RAI-SRP18-COLP-35 R1:

The response clarified the last part of the RAI concerning use of the same questionnaires for both operators and observers by indicating that the questionnaire will contain only those questions appropriate to the person filling it out. The response did not completely address the staff’s question about measurement characteristics. The response mixes measuring approaches, such as questionnaires and debriefing, and the performance measures themselves: such as workload. For example, how does the statement: “In ISV, a post-test questionnaire will be given to the operators and observers in order to investigate specific areas of interest and to assess workload, situation awareness, team work, and goal achievement” constitute construct validity for any of the performance measures listed? The staff expects the discussion of measurement characteristics to focus on the aspects of performance being measured: e.g., plant performance, task performance, situation awareness, etc. We recognize that the means of collecting data on the performance measures, such as by way of a questionnaire, is applicable to some of the specific characteristics, such as intrusiveness.

Please provide information pertaining to applicable measurement characteristics for the aspect of performance being measured.

RAI-SRP18-COLP-49 R1:

The WEC response satisfactorily addressed incorporation of tasks related to OER, the use of administrative procedures, and offsite communications. Situational factors were addressed in the response, but there are two follow-up areas associated with these.

1. Please clarify the discussion of how environmental factors are addressed.
2. Please clarify why fatigue/circadian factors are not addressed. For example, isn’t it possible to run some scenarios during the “graveyard” shift?

RAI-SRP18-COLP-52 R1:

One aspect of the ISV of the RSW is that it will include a “mock-up of the RSW panel switches.” DCD section 7.4.3.1.1 states that the RSW includes dedicated non-safety controls that provide the minimum inventory of controls listed in Table 18.12.2-1. These would appear to be the same dedicated controls that are in the MCR and hence in the simulator. Why are these simulator controls not used for this scenario rather than an additional mock-up that may not be functional?

Patrick Donnelly

Project Manager

U.S. Nuclear Regulatory Commission

Office of New Reactors, DNRL/NWE2

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Hearing Identifier: AP1000_DCD_Review
Email Number: 276

Mail Envelope Properties (6F27D3A0E6C93E4A9212AD1F4FA57B600E8ED1F3F2)

Subject: Acknowledgement of RAI-SRP18-COLP-22 to -24, -26, -28, -31 to -33, -35, -49,
and -52, all R1
Sent Date: 12/15/2009 7:21:00 AM
Received Date: 12/15/2009 7:21:10 AM
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