

## NRR-DMPSPeM Resource

---

**From:** Ken Scarola <KenScarola@NuclearAutomation.com>  
**Sent:** Monday, October 30, 2017 11:06 AM  
**To:** Rahn, David  
**Subject:** [External\_Sender] RE: 2017-10-25 Public Meeting on "NRC DRAFT REGULATORY ISSUE SUMMARY 2017-XX SUPPLEMENT TO RIS 2002-22"

Dave,

I'm quite troubled by Dave Beaulieu's position, as I commented in Item 1 in the email below. I strongly believe that if the RIS publicizes that a design defect (demonstrated to be low likelihood based on a qualitative assessment) does not require consideration when answering 50.59 Question 6, licensees are not going to perform any further analysis to ensure they can cope with a CCF malfunction. This is because anything else included in the RIS is only guidance, not a requirement. In the meeting you heard Neal Archambo verbalize this position.

As I commented below, I believe beyond design basis conditions do require consideration when answering 50.59 Question 6, because there are already several beyond design basis events in the licensing basis of all plants (e.g., ATWS, SBO, exposure fires). Modifications to equipment credited to mitigate those events, would certainly require consideration for 50.59 Question 6. Another basis for my conclusion is as follows:

My understanding of the Staff's position is that a malfunction resulting from a design defect would require consideration when answering 50.59 Question 6, even if the malfunction is concluded to be beyond design basis, if BTP 7-19 is already part of the plant's licensing basis. But the only reason BTP 7-19 is not part of the licensing basis for all plants, is because those plants did not employ digital technology, or the limited use of digital technology that they currently have was approved by the Staff based on the Staff guidance at the time of the FSAR approval (i.e., before BTP 7-19 was issued). I believe BTP 7-19 automatically becomes part of their licensing basis, if they introduce new digital technology. This is the same as if they introduce a new type of valve, pump, breaker or any other type of new SSC. When new technology is introduced into a plant, the Staff guidance applicable to that technology automatically becomes part of the plant's licensing basis. Otherwise, that new technology cannot be introduced without prior Staff approval.

I feel very strongly about this, because properly addressing all shared resources among SSCs, including a shared design, is essential to maintaining plant safety. I know this from completing several CCF susceptibility analyses. The interactions between SSCs commonly affected by a failed shared resource can be quite complex and are almost always unanalyzed.

Can you recommend a decision maker at the Staff that I could talk to about this issue. I would appreciate any contact information you can provide. Thank you.

Ken

---

Ken Scarola  
Nuclear Automation Engineering, LLC  
3672 Pine Tree Ln.  
Murrysville, PA 15668  
412-612-1192

---

**From:** Ken Scarola [mailto:KenScarola@NuclearAutomation.com]  
**Sent:** Friday, October 27, 2017 3:51 PM  
**To:** 'jason.drake@nrc.gov'  
**Cc:** David Rahn (David.Rahn@nrc.gov)

**Subject:** 2017-10-25 Public Meeting on “NRC DRAFT REGULATORY ISSUE SUMMARY 2017-XX SUPPLEMENT TO RIS 2002-22”

Jason,

These are the key points I raised in the meeting. Please make these part of the public record. Thank you.

1. Dave Beaulieu seems to have convinced the Staff that beyond design basis conditions (e.g., a CCF due to a design defect in a system with a robust design process) do not require consideration when answering 50.59 Question 6. I don't agree, because ATWS, SBO and exposure fires are beyond design basis and all of these are in every plant's licensing basis. Therefore, changes to systems that support these events would require consideration when answering 50.59 Question 6. Regardless of my opinion, the RIS must be very clear that regardless of Dave's licensing position, the Staff expects a Qualitative Assessment to be performed to address all shared resources among multiple SSCs, including a shared design such as a common digital platform or common digital transmitters. If the RIS does not make this expectation very clear, licensees will not assess any malfunctions due to a design defect; they will simply stop at the 50.59 conclusion (i.e., beyond design basis, no further consideration needed).
2. Slide 8 - The major concern is a shared resource, including a shared design, between any two SSCs in safety or non-safety systems, whose concurrent failure (including erroneous control) can impact the initial conditions or malfunctions described in the FSAR analyses (Chapter 15 or others). Also applies to slide 9.
3. Slide 9 – Don't use wording that pre-empts an answer to 50.59 Question 6. Change to 'If a proposed modification includes a shared resource ...[same words as above]...then the Qualitative Assessment guidance ...
4. Item 2 above is also an important criteria for a modification to be “screened in” although this is not the only criteria that could lead to a proposed modification screening in. The RIS should address screening, because the majority of 50.59 errors have occurred due to incorrect screening, as presented to the Staff by NEI at previous CCF meetings. We started this industry/NRC effort three years ago to address these errors. The RIS does not need to address all screening criteria, but should address shared resources because that is the most likely source of CCF.
5. Slide 13 - Saying that SECY 93-087 and BTP 7-19 do not apply to operating plants creates a difference between guidance for new plants and operating plants, which is directly against the Commissioners' direction. It is more appropriate to say that beyond design basis conditions do not require consideration when answering the 50.59 questions (as Dave Beaulieu claims, see comment 1 above). However, beyond design basis conditions do require consideration when performing the Qualitative Assessment; therefore, the guidance in SECY 93-087 and BTP 7-19, which requires consideration of a CCF in a safety mitigation system coincident with each AOO and PA, is applicable.
6. Slide 13 – Internal diversity achieves more than just low likelihood. Internal diversity is one example of a defensive measure that achieves such a low likelihood that the likelihood is comparable to the likelihood of other sources of CCF that are not considered in the FSAR (e.g., an environmental hazard that exceeds the EQ envelop). Therefore, internal diversity precludes further consideration of CCF in any plant level malfunction analysis. Simplicity, as demonstrated by 100% testability, achieves the same result (i.e., further consideration of CCF in any plant level malfunction analysis is not needed).
7. Slide 13 – GDC 22 requires functional diversity, not platform diversity (analog or digital). There is no NRC requirement for platform diversity. However, when there is no platform diversity, the platform is a shared resource (i.e., a shared design) for which a potential CCF due to a design defect must be assessed.
8. Clarity that modifications to equipment that can affect ESF actuation functions, such as a diesel load sequencer in plants where the sequencer can block ESF actuation, are considered part of the ESF actuation system; therefore, they are outside the scope of this RIS.
9. Clarify that the RIS is applicable to any modifications that are not in the pipeline for the next upcoming refueling outage.

Ken

---

Ken Scarola

Nuclear Automation Engineering, LLC  
3672 Pine Tree Ln.  
Murrysville, PA 15668  
412-612-1192

**Hearing Identifier:** NRR\_DMPS  
**Email Number:** 183

**Mail Envelope Properties** (001701d35190\$9ef2a940\$dcd7fbc0\$)

**Subject:** [External\_Sender] RE: 2017-10-25 Public Meeting on "NRC DRAFT REGULATORY ISSUE SUMMARY 2017-XX SUPPLEMENT TO RIS 2002-22"  
**Sent Date:** 10/30/2017 11:06:09 AM  
**Received Date:** 10/30/2017 11:07:24 AM  
**From:** Ken Scarola

**Created By:** KenScarola@NuclearAutomation.com

**Recipients:**  
"Rahn, David" <David.Rahn@nrc.gov>  
Tracking Status: None

**Post Office:** NuclearAutomation.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	7653	10/30/2017 11:07:24 AM

**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**