

From: Sebrosky, Joseph
Sent: Wednesday, June 24, 2020 11:24 AM
To: Afzali, Amir
Cc: Reckley, William; Cabbage, Amy; Segala, John; Valliere, Nanette; Jim C. Kinsey Jr; 'Tom King'; Thomas Hicks; Wayne L. Moe; Oesterle, Eric; Uribe, Juan
Subject: info: NRC staff feedback on Industry's June 11, 2020, public meeting presentation on Technology Inclusive Content of Application Project
Attachments: Nuclear Regulatory Commission Feedback on Southern Nuclear Presentation Final.docx

To: Amir Afzali
Southern Company Services
Licensing and Policy Director- Next Generation Reactors

The purpose of this email is to provide you the NRC's comments on the material that was presented during the June 11, 2020, technology inclusive content of application project public meeting. Background information associated with the meeting, including the slide presentation, can be found at: <https://www.nrc.gov/pmns/mtg?do=details&Code=20200609>.

The attached document provides you with the NRC's high-level comments on some of the more important topics discussed during the meeting. As you know the staff committed during the meeting to provide you these comments. These comments will be captured in the NRC's Agencywide Documents Access and Management System (ADAMS) and will be referenced in the June 11, 2020, meeting summary. The staff plans to have further discussions with you on the items identified in the attached document in future public meetings on this topic.

Please let me know if you have any questions regarding the NRC's attached comments.

Sincerely,

Joe Sebrosky
Senior Project Manager
Advanced Reactor Policy Branch
Office of Nuclear Reactor Regulation
301-415-1132

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Nuclear Regulatory Commission Feedback on Southern Nuclear Presentation
Made During a June 11, 2020, Public Meeting on
Technology Inclusive Content of Application Project (TICAP)

- The staff is providing initial feedback on the presentation to support the development of subsequent guidance document(s) that will be submitted for NRC endorsement. This feedback has not undergone management or legal review and the staff's questions or observations should not be taken as official agency positions.
- The overall approach described in the presentation appears to align with and logically build upon the NRC-endorsed methodology in Nuclear Energy Institute (NEI) 18-04, Revision 1, "Risk-Informed Performance-Based Guidance for Non-Light Water Reactor Licensing Basis Development." The use of the NEI 18-04 and related topics such as fundamental safety functions support a technology-inclusive approach to preparing an "affirmative safety case." This in turn should support organizing the scope and level of detail for information as discussed in Regulatory Guide (RG) 1.233, Revision 0, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors."
- The use of principal design criteria (PDC) for safety-related equipment within the approach described in the presentation aligns with NEI 18-04 and related initiatives that reflect a hierarchy or tiered structure for organizing information and establishing performance criteria for plant features and programmatic controls. This is an area that we can discuss in future meetings to work out how the hierarchy is described in terms of the interrelationships and terminology. It would be useful to provide example PDC and CDC at a future meeting to show the differences between the two and how they could: (1) align with fundamental safety functions and specific performance criteria (e.g., those related to required safety functions versus other design goals); (2) support the determining an appropriate level of detail in various parts of safety analysis reports; (3) support graded approaches to change control processes; and (4) provide added clarity to the distinctions made between plant features and programmatic controls in terms of their roles within an affirmative safety case.
- In terms of the proposed CDC concept or nonsafety-related with special treatment (NSRST) category, the associated design features or programmatic controls could contribute to providing prudent margins to ensure reasonable assurance of adequate protection. As discussed in RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," the safety goal subsidiary objectives have been used in the past help assess such "prudent margins". This generally aligns with the assessments in NEI 18-04 that are based on the frequency-consequence targets and the separate cumulative risk targets, which include the NRC safety goals. The staff would like to better understand if the industry's position is that design features or programmatic controls might also be provided as safety enhancements that further protect health or minimize danger to life or property as allowed under Section 161 of the Atomic Energy Act or as measures that provide margins used to justify proposed operational flexibilities based on a performance criteria established as design goals that are more restrictive than those used to determine required safety functions. As mentioned in the bullet above, we can discuss interrelationships and terminology at future meetings, but these discussions need not limit progress on the broader approach nor even on the

guidance related to scope and level of detail for plant structures, systems, and components and related programmatic controls.

- While agreeing that a reasonable presentation of an affirmative safety case should generally align with an applicant being able to “not provide evidence where certain functions ... are not needed,” there may be regulatory or policy reasons for an applicant to supplement the safety case and to some degree “prove the negative.” Examples could include the need to provide such an argument within an exemption request or first-of-a-kind adoption of major changes related to the role of operators and other facility personnel. In addition, as discussed during the meeting, the staff is developing a list of regulations that are applicable to non-LWRs and working to establish efficient processes for addressing exemptions to legally applicable but not technically relevant requirements.
- Regarding the initial outline for the content of safety analysis reports (SARs), the interrelationships and dependencies between various sections of SARs, no matter how organized, might be better addressed using available information systems that go beyond typical chapter-section models. TICAP might also consider a systems engineering approach (function-system-component, with related performance criteria and verifications) instead of the initial division of descriptions by structures, systems, and components. Such an approach might help support the overall logic that starts out at the functional level, needs to determine appropriate scope and content for plant features, and support a more performance-based approach by defining programmatic controls to ensure capabilities and availabilities are maintained. The above are just suggested areas to explore while we are in the early stages of the project.
- Regarding the mapping of how and how well the NEI 18-04-based safety case would align with the various regulations and align with 10 CFR Part 50 Appendix A General Design Criteria for a light water reactors, the staff views the exercise as a possibly useful communications tool. The mapping is not viewed as a critical activity for supporting the staff’s review and possible endorsement of subsequent guidance on content of applications.
- As stated during the meeting, the staff would appreciate observing portions of the table top exercises tentatively targeted for August of 2020 as we did some of the table top exercises supporting the development of NEI 18-04. In any case, the staff would expect the submittal of summaries of the exercises as was provided for the table top exercises that supported the development of NEI 18-04.