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PUBLIC SUBMISSION

2013 AUG 13 AM 10: 26

As of: August 13, 2013
Received: August 11, 2013
Status: Pending_Post
Tracking No. 1jx-86ze-bsz5
Comments Due: August 15, 2013
Submission Type: Web

Docket: NRC-2012-0173
Fukushima Near-Term Task Force Recommendation 1 on Regulatory Framework

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Comment On: NRC-2012-0173-0017
NRC Staff Working Group Evaluation of Alternatives for the Disposition of Recommendation 1 of the Fukushima Near-Term Task Force Report

Document: NRC-2012-0173-DRAFT-0022
Comment on FR Doc # N/A

Submitter Information

NRC-2012-0173

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General Comment

Please replace my comments file submitted on August 10, 2013 with the current one.

N. Prasad Kadambi

Attachments

NPK Comments on NRC-2012-0173-0017

SUNSI Review Complete
Template = ADM - 013
E-RIDS= ADM-03
Add= *D. Doyle (dil)*
D. Dudley (rfd)

Comments on NRC-2012-0173-0017

provided by N. Prasad Kadambi, Consultant

The NRC staff is seeking public comment on the document NRC-2012-0173-0017 which is characterized as a status report on the staff's evaluation of NTTF Recommendation 1 taking into consideration NUREG-2150.

Comment 1:

The NRC staff should change the sequence of activities to complete Improvement Activity 2 before embarking on Improvement Activity 1

The NRC staff's stated goal in NRC-2012-0173-0017 is to propose improvement activities that would enable the US nuclear regulatory framework to reflect NTTF Recommendation 1. To accomplish this, the subject paper states that:

- Improvement Activity 2 would establish the Commission's expectations for defense-in-depth as applied to nuclear power reactor safety.
- It would set forth the defense-in-depth approach as a hierarchy that includes specified levels of defense for reactor safety.
- A policy statement would be developed as part of the draft policy statement that is being prepared for Commission consideration in addressing the recommendation in NUREG-2150 for a Risk Management Regulatory Framework (RMRF) policy statement.

Looking to NTTF Recommendation 1, one observes that the key characteristic of the improvements envisioned in Recommendation 1 is the development of a regulatory framework as follows:

- The framework would provide a more coherent structure within the regulations to facilitate Commission decisions relating to what issues should be subject to NRC requirements and what those requirements ought to be.
- The regulatory framework should be based on the defense-in-depth philosophy, supported and modified as necessary by state-of-the-art PRA techniques.
- The framework would be one in which the current design-basis requirements (i.e., for anticipated operational occurrences and postulated accidents) would remain largely unchanged and the current beyond-design-basis requirements (e.g., for ATWS and SBO) would be complemented with new requirements to establish a more balanced and effective application of defense-in-depth.
- The framework could support shifting issues currently addressed as design-basis requirements to the "extended design-basis" category of requirements. Such changes would establish a more logical, systematic, and coherent set of requirements addressing defense-in-depth.

This structure sets out the goals and objectives of the framework. Successful accomplishment of these goals and objectives are characterized in NTTF Recommendation 1 on the basis of the following acceptance criteria:

- The Commission's regulatory requirements, processes, and programs should effectively address each layer of protection while maintaining appropriate balance among them.
- Ensure the completeness and effectiveness of each level of defense-in-depth as an essential element in the overall approach to ensuring safety.
- Formally establish in the regulations an appropriate level of defense-in-depth to address requirements for "extended" design-basis events.
- Requirements addressing beyond-design-basis concerns are imposed when they are found to be associated with a substantial enhancement in safety and justified in terms of cost.

Having a Commission-approved regulatory framework that meets these criteria would logically set the stage for pursuing Improvement Activity 1 whereby:

- protection from external events that could lead to fuel damage is provided for;
- mitigation of the consequences of such accidents should they occur, is accomplished with a focus on preventing core and spent fuel damage and uncontrolled releases of radioactive material to the environment;
- emergency preparedness is accomplished to mitigate the effects of radiological releases to the public and the environment, should they occur.

With such an outcome in mind, what is needed to make the connections between the goals and acceptance criteria are decision making structures and processes that employ technically sound methods and tools. The NRC staff's regulatory program currently implements significant processes that, unfortunately, have not been brought together in a coherent structure. For example, risk-informed regulation (i.e., regulation using PRAs) serves the limited roles of maintenance rule implementation, Regulatory Analysis Guidelines, the search for vulnerabilities (e.g., through the IPE and IPEEE programs), the Reactor Oversight Process (ROP) and its significance determination process, and voluntary license amendment applications (e.g., risk-informed inservice inspection). Also, for new reactors, the Commission has moved away from a largely design-basis accident concept, requiring applicants for design certifications and combined licenses (COLs) under 10 CFR Part 52, "Licenses, Certification, and Approvals for Nuclear Power Plants," to perform a PRA and provide a description and analysis of design features for the prevention and mitigation of severe accidents (10 CFR 52.47(23) and 10 CFR 52.79(48)). Each design certification rule (10 CFR Part 52, Appendix A, "Design Certification Rule for the U.S. Advanced Boiling Water Reactor," and other Part 52 appendices) then codifies the severe accident features of each approved standard design.

NUREG-2150 offers the decision making structure and describes for each area of NRC's regulatory activity the description of how the structure could be implemented. The Appendices go into considerable detail in describing state-of-the-art methods and tools. Hence, the NRC staff's immediate task should be to conceptualize, with appropriate input from stakeholders, the structure that accomplishes the above goals and objectives. This would go a long way toward accomplishing the NRC staff's stated goal in NRC-2012-0173-0017 for Improvement Activity 2. If resources are spent on Improvement Activity 1 prior to gaining agreement on a defense-in-depth framework, it is inevitable that inefficiencies, duplication and internal conflicts will arise.

Comment 2:

The NRC staff should explicitly define a role for voluntary consensus standards before embarking on Improvement Activity 3

In response to an earlier solicitation for comment regarding NTTF Recommendation 1, this commenter offered the following:

"The options associated with appropriate ways for the Commission to consider a role for voluntary industry initiatives in the regulatory process should include consideration of voluntary consensus standards and conformity assessment procedures. The regulatory framework that NTTF envisioned would permit voluntary industry initiatives to continue to play a useful and valuable role. Voluntary industry initiatives would not serve as substitutes for regulatory requirements but as a mechanism for facilitating and standardizing implementation of such requirements. The issue that NTTF identified was that the formal regulatory system was not always able to hold licensees accountable to implement and effectively maintain conformance with specified requirements to which licensees made commitments. In the world of voluntary consensus standards this is a conformity assessment issue. Statutory requirements on such matters are determined by P.L. 104-113, the "National Technology Transfer and Advancement Act" of 1995, US government policies by OMB Circular A-119, and the NRC's process by Management Directive 6.5. The NRC staff should be directed to explore a possible role for standards developing organizations in bringing about better accountability to voluntary industry initiatives."

NRC-2012-0173-0017 totally ignores this input. There is no mention of voluntary consensus standards throughout the paper. If the staff looks back at the antecedents to the Commission's consideration of this issue, it will find that the origins of Improvement Activity 3 arise in Direction Setting Issue 13 on "Role of Industry" (COMSECY-96-062). Subsequently, the staff issued SECY-97-303 in which utilization of codes and standards was explicitly addressed. The connection has since been lost and Improvement Activity 3 is deficient on that account. The above comment should be given serious consideration so that the benefit of the work done pursuant to DSI-13 is not lost.