



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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MEMORANDUM TO: Jennivine Rankin, Acting Chief
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Office of New Reactors

FROM: Barbara Hayes, Project Manager **/RA/**
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SUBJECT: SUMMARY OF PUBLIC MEETING ENTITLED "NRO
TRANSFORMATIVE ACTIVITIES: ENHANCING FOCUS ON SAFETY,
SECURITY, RISK AND/OR ENVIRONMENTAL SIGNIFICANCE IN
REVIEWS"

On August 9th, the staff held a public meeting to discuss ongoing transformative staff activities for enhancing the focus on safety, security, risk, and/or environmental significance in new reactor reviews. The purpose of the meeting was to have broad engagement with stakeholders on recent and potential future transformative activities of the Office of New Reactors (NRO).

Prior to the meeting, staff reached out to three non-governmental organizations (NGOs), five industry organizations, three external government agencies and twenty-seven representatives from industry to notify them about the meeting. The meeting was also noticed on the U.S. Nuclear Regulatory Commission's (NRC) public website. During the meeting, NRO management presented information on ongoing changes in licensing review and pre-application processes and three external organizations provided formal remarks. Over thirty external stakeholders attended and the subsequent discussion with stakeholders focused on potential future rulemakings and how risk-informed, performance based licensing can reflect more passive safety features.

The agenda is available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML18214A431. The NRC staff presentation made at the public meeting can be found under ADAMS Accession No. ML18214A432.

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MEETING SUMMARY

Opening Remarks by Frederick D. Brown, Director, Office of New Reactors

Frederick Brown, NRO Director, opened the meeting by referencing a Nuclear Energy Institute (NEI) technical report (TR) entitled “Recommendations for Enhancing the Safety Focus of New Reactor Regulatory Reviews” received from the NEI on April 25, 2018 (ADAMS Accession No. ML18116A053). He noted that several issues discussed in NEI’s report were relevant to the meeting:

- The cost and time of application reviews has been increasing over time.
- More in-depth reviews have not always had a clear connection to regulations.
- Requests for Additional Information (RAI) have not always been tied to a relevant finding.
- Regulatory audits have not always had clear requirements and closure points.

Mr. Brown noted that there have already been process changes underway that are directly relevant to these observations. The fact that NRC received the TR either means that NRO has not made such significant process changes or it means that NRO’s process changes are not well understood. As such, this public meeting on NRO’s transformative activities provides an opportunity for interchange with stakeholders that is responsive to both interpretations.

Mr. Brown referenced SECY-18-0060, “Achieving Modern Risk-Informed Regulation,” (ADAMS Accession No. ML18110A186) and noted that though a response from the Commission is still pending, input from the public meeting is valuable.

Mr. Brown remarked that this is a critical time for NRO which will continue as a separate office for approximately two more years. Though critical work is currently underway, as NRO completes current reviews, NRO will have the resources to focus on infrastructure. NRO, thus, has a brief time of flexibility for such efforts.

Session 1 – Presentation by NRC staff

Robert M. Taylor, Director of NRO’s Division of Licensing, Siting, and Environmental Analysis (DLSE) provided information on enhancing licensing tools and processes. His remarks focused on efforts that were started early in FY2016 with the goal of promoting safety focus, efficiency, consistency and clarity in NRO reviews. In October, 2016, the NRO Director issued a memo to staff entitled “Effective Use of Request for Additional Information, Audit, and Confirmatory Analysis in New Reactor Licensing Reviews,” (ADAMS Accession No. ML16278A574) which outlined several changes to processes related to reviews and revised guidance to staff.

Mr. Taylor discussed recent changes in the 2018 time frame including an internal audit related to RAIs that were conducted in 2018. He reported that the audit of RAIs since the October 2016 memorandum to staff showed that RAIs were generally of good quality but that further changes to internal processes and guidance to staff had been recommended and implemented.

Mr. Taylor additionally discussed changes to regulatory audits and an ongoing assessment of best practices and lessons learned from the Clinch River early site permit application review.

Mr. Taylor closed by discussing a recent initiative related to the revision of the Standard Review

Plan (SRP), Section 2.4 on Hydrology of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Mr. Taylor's detailed remarks can be found in the NRC staff presentation under ADAMS Accession No. ML18214A432.

John Monninger, Director of NRO's Division of Safety Systems, Risk Assessment and Advanced Reactors (DSRA), provided information on advanced reactors (ARs) and NRO's efforts to enable the safe and secure use of nuclear materials. Mr. Monninger referenced the need for systematic and expanded use of risk and safety insights and the need to scale a review to meet the standard of reasonable assurance of adequate protection of public health and safety as described in SECY-18-0060. Mr. Monninger then outlined key features of the regulatory planning framework for ARs. He further discussed how the framework is tied to a paradigm shift in how NRC approaches future reviews for ARs. Mr. Monninger's detailed remarks can be found in the NRC staff presentation under ADAMS Accession No. ML18214A432.

Anna Bradford, Deputy Director of NRO's DLSE discussed the Commission directed rulemaking for Title 10 *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" and 10 CFR Part 52, "Licenses, Certifications, Approvals for Nuclear Power Plants," alignment and lessons learned. She described briefly SECY-15-002, "Proposed Updates of Licensing Policies Rules, and Guidance for Future New Reactor Applications" (ADAMS Accession No. ML13277A420) and the Commission's associated staff requirements memorandum. Ms. Bradford further provided examples of some issues that are expected to be in the rulemaking as well as issues that will likely be considered for inclusion in the rulemaking. Ms. Bradford closed by discussing next steps. Her detailed remarks can be found in the NRC staff presentation under ADAMS Accession No. ML18214A432.

Session 1 – Stakeholder Questions and Comments on NRC staff Presentation

A number of questions or comments were directed to the speakers as follows:

Speed of Rulemaking

Gary Peters of Framatome, Inc., asked whether rulemaking can be done more quickly, given that it appears as a necessity for some of the transformative activities discussed in the presentations.

Fred Brown responded that, though NRO is not limited to changes that include rulemaking activities, they are important and the NRO is in fact looking into ways to speed up the rulemaking process while staying within the requirements of the Administrative Procedures Act. He mentioned that, as an example, the rulemaking for the Korea Hydro & Nuclear Power Co., Ltd. AP1000 standard design certification (DC) rule may be via a direct final rule. If so, the rulemaking would take a significantly shorter amount of time.

John Monninger added that for non-light water reactors (LWR), a number of activities can potentially be moved forward without rulemaking regarding diverse opportunities such as the approval process for advanced reactor design criteria (ARDC) and design basis accidents as well as other activities related to the licensing modernization project discussed in his presentation.

Near-term Advanced Reactor Applications

A related question was received from Steve Dolley of S&P Global Platts. Mr. Dolley stated that some AR developers might come in for a DC as early as next year. How will such early applicants take advantage of the current processes in place?

John Monninger responded that NRO is well aware that some DC applications could be received soon. For those, existing regulations are applicable and have been discussed with potential applicants. Mr. Monninger further stated that there has not been a broad interest expressed at stakeholder meetings for a broad rewrite of the regulations, however, rulemakings on specific topics, such as emergency planning and security considerations, have been targeted early for possible rulemaking activities.

Fred Brown added that NRO staff believes it can handle a non-LWR application under existing regulations today if there has been pre-application engagement using a performance-based approach.

Future Revisions of the Standard Review Plan

Russell Bell of NEI provided additional comments and questions. He noted that he appreciated Fred Brown's reference to NEI's April letter and technical report. He further noted that staff had made demonstrable progress but that NRC knows that they are not done and is still working on additional changes. Mr. Bell's first question was related to the SRP and the pilot project discussed by Robert Taylor. The developments related to Section 2.4 of the SRP appear to be a great example but is it possible to do a second pilot project that is more focused on issues of interest to a designer such as circulating or cooling water? Mr. Bell further asked to what extent will the revision of Section 2.4 be technology neutral.

Fred Brown agreed that multiple chapters was a good idea particularly in light of the expected near-term window of opportunity related to staff availability. Mr. Brown additionally stated that Section 2.4 is applicable to non-LWR though that was not the particular focus of the activity. He noted that the question of technology neutral approaches is particularly appropriate for other chapters, however.

Robert Taylor was in general agreement but noted that development and refinement of a template from the pilot project will take time.

Rulemaking for 10 CFR Part 50/52 Alignment and Lessons Learned

Russ Bell provided an additional comment related to Anna Bradford's discussion of potentially including changes to the "50.59-like" change control processes of the 10 CFR Part 52, Appendices (under Section VIII.B.5) in the 10 CFR Part 50/52 rulemaking. He stated that including this issue was a surprise and that he had assumed that these changes, referenced in the "Transformation SECY" (SECY-18-0060), would be reflected in some other future rulemaking. He further expressed concern that inclusion of the issue in the 10 CFR Part 50/52 rulemaking might result in significant delays. He closed by noting that the question of an advanced notice of proposed rulemaking (ANPR) would be considered by NEI. Though an

ANPR may be appropriate for such a big rulemaking, other approaches to public interaction may be preferable.

Session 2 – Registered Stakeholder Remarks

After a brief recess, remarks were shared by three stakeholders that had registered in advance of the public meeting.

Remarks by Dr. Edwin Lyman of the Union of Concerned Scientist (UCS)

Dr. Lyman began his prepared remarks on policy issues by thanking NRC for the invitation. Dr. Lyman indicated that the UCS disagrees strongly with SECY-18-0060, “Achieving Modern Risk-Informed Regulation.” He stated that NRC has no need to engage in the activities outlined in SECY-18-0060 and should instead focus on safety. Dr. Lyman stated that among other concerns, if NRC goes too far, NRC may lose the gold-star status associated with its safety reviews. Dr. Lyman indicated that SECY-18-0060 references the use of risk insights but does not include any discussion related to probabilistic risk assessment (PRA). He further stated that since the Commission’s policy statement of 1995, PRA has not attained a status appropriate for greater use and that this is particularly the case for non-LWR.

Dr. Lyman indicated that the assumption of increased safety due to more passive safety features needs to be validated and that for any new design, one can find 10 or 15 new failure modes. He further stated that the assumption results in potentially faulty reasoning in that a reviewer will not see a new failure mode if not looking for potential new failure modes associated with a new technology. Dr. Lyman further pointed out that NRC does not have a mandate to accept greater risks and should be careful not to give non-LWR vendors the impression that higher risk levels are appropriate.

Dr. Lyman also provided general remarks regarding non-LWRs. With regard to a potential major rulemaking (e.g., a new 10 CFR Part 53) as discussed by Mr. Monninger, Dr. Lyman stated that it did not make sense that such a rulemaking would not also be applicable to LWRs. He further stated that development of non-LWRs should be a stepwise process via research, testing, and accumulation of operator experience in order to avoid repeating earlier mistakes like the Three Mile Island accident.

Remarks by Russell Bell of the Nuclear Energy Institute on the 10 CFR Part 52/52 Rulemaking

Russell Bell of NEI provided prepared comments on the proposed 10 CFR Part 50/52 rulemaking. Mr. Bell started by stating that 10 CFR Part 52 is not perfect and that industry continues to identify gaps, but that 10 CFR Part 52 as a whole has value as follows:

- It resolves safety issues early.
- It provides an opportunity for stakeholder involvement.
- It incentivizes vendors to develop new safety designs.

- It provides greater finality to a design for a price. That price is reflected in strict change control processes that trend towards higher amounts of review time that is ultimately paid for by operators.

Mr. Bell stated that the finality provided by 10 CFR Part 52 has sometimes backfired as seen in the case of Duke Energy. He further stated that standardization was important in the past but it undermines efforts to bring plants on line. Mr. Bell agreed that the 10 CFR Part 50/52 alignment rulemaking is important.

Mr. Bell shared some of the discussion on 10 CFR Part 52 from a recent meeting of the NEI New Plant Working Group. Key messages from stakeholders at that meeting were as follows:

- Other issues are more important.
- 10 CFR Part 52 is too “heavy a lift”.
- An excessive level of detail associated with application requirements is a bigger problem that NRO’s efforts on the SRP, as presented, may help with. He further elaborated that excessive level of detail has the following problems:
 - It loses the safety focus.
 - It has significant cost and time impacts. It ends in problems that last the life of the plant.
 - 10 CFR Part 52 is problematic once you are in construction.
- Regarding non-LWR, there is no need for a new rule.
- The benefit of alignment to applicants submitting an application under 10 CFR Part 50 is questionable though 10 CFR Part 50 must be preserved.

Mr. Bell stated that the 10 CFR Part 50/52 rulemaking should address the above concerns. He further questioned whether these concerns could be addressed through guidance instead. He stated that industry can bring substantial input on the question of what needs to be changed. Mr. Bell closed by making the analogy of preparing to fight the last war with a large army when targeted special forces are more appropriate. Mr. Bell concluded by stating that 10 CFR Part 52 is not perfect but fixing it is worthwhile and that NEI is ready to engage on the topic.

Remarks by Michael F. Keller of Hybrid Power Technologies LLC

Mike Keller shared remarks on Hybrid Power Technologies, LLC’s planned alternative approach to licensing that Mr. Keller expects to reduce cost and time associated with reviews. Hybrid’s proposed alternative approach to licensing is expected to take advantage of fail-safe passive safety systems. Mr. Keller indicated that use of root-cause analysis will avoid unnecessary reviews related to LWR technologies that are not relevant to the safety of Hybrid Power’s design. By separating nuclear safety issues from plant safety issues, a tiered approach will allow a streamlined review by NRC while still meeting regulatory requirements. Mr. Keller indicated that many regulations would not apply due to passive fail-safe features and noted that

such an approach would be useful to AR technologies other than Hybrid Power Technologies' design.

Steve Dolley inquired of Mike Keller regarding Mr. Keller's statement that AR are passively failsafe. Mr. Dolley inquired as to how that is demonstrated so that NRC knows. Mr. Keller responded that not all ARs are "created equal" and that the review approach he presented is not less stringent. The applicant must demonstrate the features that are passively failsafe.

Session 2 – Additional Stakeholder Remarks

After remarks made by registered stakeholders were complete, additional discussion followed.

Zachary Harper of Westinghouse provided comments on the 10 CFR Part 50/52 rulemaking and associated draft guidance as it relates to DC renewal and license conditions from construction. Mr. Harper stated that there is no difference in the renewal process that would reflect the different constraints for a design that has been through construction. Mr. Harper stated that such information should be considered in renewal and non-significant issues should be screened out. He noted that this is an issue that would not have been foreseen 30 years ago when 10 CFR Part 52 was promulgated. Mr. Harper further stated that Westinghouse would be willing to meet with NRC on this topic. He additionally noted that this DC renewal issue has no safety impact. Fred Brown responded that there is ample opportunity to have safety focus with DC renewals.

Tom Bergman of NuScale noted his appreciation for the improvements related to RAIs and regulatory audits. He expressed some ambivalence regarding the 10 CFR 50/52 rulemaking but stated that he supported Mr. Harper's relevant statements and that such a rulemaking should be more than just "clean-up". Mr. Bergman's additional comments related to the 10 CFR Part 50/52 rulemaking touched on the value of Tier 1 information and whether the cost of placing information into Tier 1 may not be worth the finality that is gained during the certification. Mr. Bergman also indicated that the rulemaking should address what "essentially complete" means.

Meeting Adjournment

Fred Brown closed the meeting by thanking everyone for their participation. He stated that he expects ongoing engagement in the future as various activities such as the rulemaking get underway. Mr. Brown thanked Dr. Lyman for his remarks regarding safety and clarified that the focus in the activities is on meeting regulations and not on changing or lowering requirements. Mr. Brown stated that with an improved focus, NRC can, in fact, do a better job if unnecessary review of details that are not associated with safety are avoided. The improved safety focus should deliver risk insights that ensure that regulatory standards are met. In closing, the NRC staff inquired if there were any additional comments or questions from the general public but received no response, upon which, the meeting was adjourned.

Enclosure: Meeting Attendees List

cc w/encl: See next page

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ENTITLED "NRO TRANSFORMATIVE ACTIVITIES: ENHANCING FOCUS ON
SAFETY, SECURITY, RISK AND/OR ENVIRONMENTAL SIGNIFICANCE IN
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Public Meeting with NEI on Avoiding Delays on Issuance of NRC COL
August 9, 2018

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(Revised 08/16/2018)

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