AFFIRMATION ITEM
RESPONSE SHEET

TO: Carrie M. Safford, Secretary

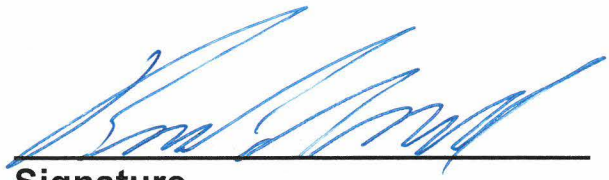
FROM: Commissioner Crowell

SUBJECT: SECY-19-0062: Final Rule: Non-power Production or Utilization Facility License Renewal

Approved _X_ **Disapproved** _____ **Abstain** _____ **Not Participating** ___

COMMENTS: **Below** ___ **Attached** _X_ **None** __

Entered in STAR
Yes _X_
No _____



Signature

Date 04/ 4 /24

Commissioner Crowell's Comments on SECY-19-0062, "Final Rule: Non-Power Production or Utilization Facility License Renewal"

This paper presents the Commission with the staff's draft final rule to provide regulatory improvements for the licensing and oversight of nuclear research reactors, testing facilities, and commercial medical isotope production facilities, or as they are collectively known, non-power production or utilization facilities (NPUFs). NPUFs form an important foundation for understanding key phenomena, advancing nuclear technology, and supporting the development of students and professionals in academia and the nuclear industry. I commend the staff for taking steps to provide additional clarity to support efficient and effective licensing of NPUFs, and I support finalizing this rulemaking, subject to consideration of my comments below.

Compared to the existing requirements, the draft final rule establishes both process and substantive changes for NPUFs, several of which can be categorized as rule clarification and consolidation or streamlining of licensing basis management. These include: (1) eliminating license terms for facilities licensed under 10 CFR 50.21(a) or (c); (2) consolidating and clarifying license renewal provisions for NPUFs in a new 10 CFR 50.135; (3) requiring NPUFs to submit an updated final safety analysis report (FSAR) at five year intervals; (4) amending the timely renewal provisions under 10 CFR 2.109 for NPUFs for facilities to be submitting a license renewal application at least two years prior to license expiration; (5) extending the applicability of 10 CFR 50.59 to NPUF licensees, regardless of decommissioning status; (6) clarifying the requirements for meeting existing provisions of 10 CFR 51.45 for environmental reports; and (7) eliminating the requirement for NPUF licensees to submit financial qualification information with a license renewal application.

With the exception of items (1), (3), and (4), these provisions establish needed regulatory clarity and rectify inconsistencies with other NRC regulatory requirements. Item (4) provides additional time based on the staff's experience for the NRC to evaluate the sufficiency of timely renewal applications, and the applicability of this provision is reduced in scope by the changes in (1) and (3). Taken together, items (1) and (3) represent a fundamental change to the licensing process for research reactors and medical therapy facilities. Eliminating license terms for these facilities while requiring periodic FSAR updates is appropriate given the lower risk profile and scope of aging management that needs to be considered for these facilities compared with power reactors.

However, I have some concern related to allowing for unlimited license terms for NPUFs that are research reactors or medical therapy facilities. While I agree that it is appropriate to provide for a level of regulation commensurate with the classification of these facilities, as required under the Atomic Energy Act, I do not believe the final draft rule sufficiently addresses all reasonable scenarios within this context. Specifically, my concern is a potential scenario in which a licensee authorized to operate elects to indefinitely discontinue operations with no intention of restart in lieu of proceeding to decommissioning and license termination. Nothing in the current or proposed requirements would preclude this from happening. To address this unlikely yet possible scenario, I recommend clarifying, as part of the 5-year FSAR update review for these facilities, that staff should assess the condition of the facility to confirm through established processes (e.g., routine inspections) that FSAR commitments continue to be maintained. These changes would help obviate the potential for unintended facility degradation by continuing to ensure an appropriate level of oversight. The periodic FSAR update and associated staff assessment also provide potential safety benefits by having responsible

facility/faculty staff maintain sufficient familiarity with the licensing basis. With this slight modification, I approve these provisions of the rule.

Two other proposed changes in the draft final rule merit additional discussion. The first relates to the new accident dose criteria, which in effect revises the dose criteria for NPUFs that are not testing facilities from Part 20 values (currently, an effective 100 mrem total effective dose equivalent, or TEDE) to a fixed 1 rem TEDE for the duration of the accident in the rule. In this paper, the staff states that "the NRC considers the accident dose criteria in 10 CFR part 100 to be too high for NPUFs other than testing facilities, because those NPUFs have lower risk profiles than testing facilities."[1] The staff's basis for this change rests largely on the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs), which are specified to prevent acute effects, balance protection with other factors to ensure that actions taken provide more benefit than harm, and reduce risk from chronic effects. While a specific technical basis that directly considers radiological safety (especially in the context of other licensed activities with different dose criteria) may be preferred, I agree that codifying these dose criteria represents an increase in regulatory clarity and continues to ensure protection of public health and safety and of the environment.

The second change that merits additional discussion is the revision to the definitions of "research reactor" and "testing facility." The draft final rule provides new definitions for "non-power production or utilization facility" and "non-power reactor," which I support in the context of the overall rule scope. While I agree with NRC staff that the 10 MW(t) and 1 MW(t) thresholds for a testing facility in the current regulatory framework are somewhat arbitrary and do not have a clear technical basis for why a facility just below this threshold is somehow different from one just above it, [2] it is not clear that the definition in the proposed rule provides a tangible improvement.

The proposed definition of testing facility has two criteria that would lead to a facility being classified as a testing facility: (1) exceeding the proposed 1 rem dose criteria discussed above, and (2) a determination by the Commission that the design, operation, or use and the associated risk warrant classification as a testing facility. The first creates an inconsistency in potentially making the criteria effectively risk based, using dose as the metric. In fact, as stated above, part of the staff's basis for changing the dose criteria is that the current criteria are considered "too high for NPUFs other than testing facilities." To then use the dose criteria to delineate what constitutes a testing facility leads to ambiguity on what exactly constitutes a "lower risk profile" other than the calculated accident dose, which may only reflect a single scenario and not a holistic assessment of the risk presented by the facility. Similarly, the second criteria is also vague and presents potential challenges for review clarity, as well as for regulatory consistency and reliability, given that risk for these facilities has not historically been quantified to the same degree as larger reactors.

Further, these proposed definitional changes also have the potential to create misaligned incentives for selecting and performing analyses to calculate relevant dose criteria. The staff states "[f]or example, a testing facility might, based on the dose criterion in the final rule, seek to change its license type to a research reactor to reduce regulatory and financial burdens."[3] Fees, referral to the ACRS for review, and mandatory hearings are all examples of requirements for testing facilities that a prospective licensee might seek to avoid via classification as a research

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[1] SECY-19-0062 Encl. 1 at 33

[2] SECY-19-0062 Encl. 1 at 18

[3] SECY-19-0062 at 11

reactor. It is not difficult to envision a future testing facility with a calculated dose slightly higher than the proposed 1 rem taking steps to be just under 1 rem (just as a testing facility today might choose to go from say 15 MW(t) to 10 MW(t) in order to be classified as a research reactor). If these steps were programmatic or design changes to reduce the risk of the facility to be under that threshold, I would agree that the proposed criteria are appropriately risk-informed. But such steps could just as easily be analytical refinements that do not materially affect the real risk profile presented by the facility.

This creates the potential for inconsistencies in scope and depth of review, thus potentially undermining the staff's ability to establish appropriate guardrails to protect public health and safety. For example, the same facility (with a negligible difference in power output) classified as a research reactor instead of a test reactor would not be referred to the ACRS for review. This would clearly be problematic for facilities that are likely to be first-of-a-kind and raise genuinely novel issues. In such cases, ACRS review is critically important and also offers potential efficiencies for subsequent reviews if a test reactor is precursor to licensing a larger-scale power reactor using the same technology.

I agree that a more risk-informed set of definitions is worthwhile. Because the proposed rule uses a calculated criteria (dose at the edge of the restricted area resulting from an accident) with facility- and event-specific inputs rather than a characteristic of the facility (power level) to classify, the staff should update applicable guidance for characterizing those accidents such that it is sufficiently comprehensive and available to ensure consistent, predictable regulation of these facilities. The accident conditions for a given facility are contingent on the licensee's selection of events and systems used to mitigate against them, and any guidance should make clear to the staff, licensees, and other stakeholders the types of events that should be considered when evaluating the facility against the regulatory dose criteria.

Additionally, the staff should update the preamble or guidance, as appropriate, to provide additional context for factors the Commission might consider when making the determination to classify a licensee as a testing facility considering the breadth of facilities that might be subject to this provision and the differences in risk insights that have historically been available for testing facilities.