



March 2, 2021

The Honorable Christopher T. Hanson
Chairman, U.S. Nuclear Regulatory Commission
U.S. Nuclear Regulatory Commission
Mail Stop O-16 B33
Washington, DC 20555-0001

Dear Chairman Hanson:

The American College of Radiology (ACR)—a professional association representing over 40,000 diagnostic radiologists, interventional radiologists, radiation oncologists, nuclear medicine physicians, and medical physicists—congratulates you on your appointment as Chairman of the U.S. Nuclear Regulatory Commission (NRC). As the largest medical professional association that actively monitors and participates in NRC’s policy activities, the ACR looks forward to continuing to work with you and your fellow Commissioners throughout your tenure to ensure radiation safety and appropriate oversight of the medical use of byproduct material.

The President has promised a recommitment to science by executive departments and agencies. In that vein, we hope the NRC will appropriately elevate the expertise of medical licensees, physician specialists dealing with radioactive materials, medical physicists, and other experts on 10 CFR §35 issues. This would include better integration of NRC Advisory Committee on the Medical Uses of Isotopes (ACMUI) recommendations into the agency’s decision-making, and a greater voice for the physician and medical physicist stakeholders who have real-world expertise in the critical issues being evaluated. To that end, we recommend:

1. Opposition to Authorized User (AU) eligibility changes described in SECY-20-0005.
2. Denial of PRM-35-22.
3. Exploration of ways to elevate the advice of ACMUI and medical use experts.

Issue 1: Maintaining the Integrity and Safety of AU T&E (SECY-20-0005)

NRC’s multidisciplinary and multispecialty stakeholders have long opposed modifying AU training and experience (T&E) requirements for radiopharmaceuticals under 10 CFR §35, which would significantly lower the bar to enable physicians with insufficient levels of radiation safety T&E to obtain AU eligibility. Despite robust responses to multiple requests for comment, evidence-based ACMUI subcommittee reports, and a petition denial by NRC on a similar concept in 2007, the many concerns of NRC’s immediate stakeholder communities were inadequately reflected in the staff recommendations for the rulemaking plan described in SECY-20-0005: *Rulemaking Plan for Training and Experience Requirements for Unsealed Byproduct Material*.

Physician-AUs are ultimately responsible for the safe use in patient care of byproduct material at NRC- and Agreement State-licensed healthcare facilities, working together with Radiation Safety Officers (RSOs) responsible for implementing licensees' radiation protection programs. It is not uncommon for AUs to also serve as RSOs, particularly for smaller-to-medium-sized licensees. NRC's effectiveness as a regulator in protecting public health and safety is predicated on AUs having the minimum level of radiation expertise necessary to be responsible for the medical use(s) in question. Indeed, several of NRC's oversight mechanisms—for example, identification, remediation, and reporting of medical events under §35.3045—depend on AU-physicians and AU-supervised personnel to identify emergent situations and respond appropriately.

Currently, physicians may become AU-eligible by obtaining NRC-recognized board certifications or by documenting completion of the "alternate pathway" specified for the use(s) in question. Specialty boards seeking NRC recognition must ensure their candidates' training programs provide the minimum T&E for the medical use(s) in question. NRC's board recognition process is open and inclusive for any boards that can meet the minimum requirements.

While SECY-20-0005 does not explicitly propose "weakening" AU T&E, it does describe the purpose of reimagining NRC's board recognition criteria: "*so that certification by specialty boards other than the existing nuclear medicine and radiation oncology boards would be an acceptable T&E pathway for the use of radiopharmaceuticals.*" Considering the limited coverage of relevant training in non-radiological medical specialties, achieving this concept in practice would, by necessity, weaken the board recognition criteria so that training programs associated with non-radiological specialty boards could readily satisfy the revised requirements.

The implicit goal of commercial entities leading the advocacy campaign for AU T&E deregulation is transparent—if ordering physicians who manage patients' care served as AUs at NRC- and Agreement State-licensed facilities instead of radiological subspecialists, this could incentivize them to avoid referrals and order more radiopharmaceutical therapies for patients (i.e., "self-referral"). To achieve this goal, proponents of deregulation argue there are insufficient or otherwise diminishing numbers of AUs to provide therapeutic radiopharmaceuticals to patients at NRC-licensed facilities, and that this AU shortage is at fault for a perceived underutilization of 10 CFR §35 Subpart E therapies. They argue that deregulation of AU eligibility would improve "patient access" in geographically underserved areas—an idea which assumes more AU-eligible physicians would lead to more NRC-licensed institutions in rural areas equipped and willing to provide advanced Subpart E therapies. They further argue that AU deregulation is acceptable because radiopharmaceuticals are "safe" if prepared by a commercial nuclear pharmacy for non-expert handling and use via unitized dose delivery systems. Each of these arguments have been debunked by ACMUI and NRC's greater medical use community.

The NRC itself denied a petition for rulemaking in 2007 (PRM-35-19) involving a similar request to reduce AU eligibility requirements for certain types of Subpart E therapies, noting:

“. . . The regulations for the medical use of byproduct material are predicated on the assumption that properly trained and adequately informed physicians will make decisions that are in the best interests of their patients. The training and experience requirements for the medical use of

unsealed byproduct material requiring a written directive help to ensure that authorized users are properly trained and adequately informed. . . The required training is that considered appropriate for the purposes of radiation safety of workers, members of the public, and patients. The adequacy of the training of authorized users is an important contributor to radiation safety.” (NRC. [2007, Oct. 24]. William Stein, III, M.D.; *Denial of Petition for Rulemaking*. Federal Register. <https://www.federalregister.gov/d/E7-20918>)

To evaluate the issues raised by proponents of deregulation, the ACMUI spent several years publicly discussing industry’s concerns, exploring real-world drivers of therapeutic radiopharmaceutical utilization, and collecting AU pipeline data from physician boards and training programs. The NRC staff appropriately reached out to stakeholders with multiple requests for public comment—these outreach efforts resulted in numerous well-reasoned arguments submitted by medical use experts in favor of the agency’s current regulations, and significantly fewer and largely unsubstantial comments from non-experts relaying the same talking points for deregulation. The NRC staff evaluation subsection of SECY-20-0005 correctly stated:

“The staff did not draw any conclusions about whether the number and location of licensees are sufficient to satisfy patient demand for radiopharmaceuticals, as such a determination would require detailed health care market data and analyses outside the NRC’s purview. The NRC regulates medical uses of byproduct material to ensure the safety of workers and the general public, and, while the staff considered patient access concerns, the NRC cannot regulate T&E with a primary goal of increasing patient access to radiopharmaceuticals or improving the geographic distribution of AUs. . . However, staff notes that for reasons outside the NRC’s purview, creation of new AU pathways would not guarantee increased AU availability in rural areas or increased overall patient access to radiopharmaceuticals.” (NRC, ML19321E359)

Nonetheless, SECY-20-0005 recommended substantial paradigm changes for AU eligibility without providing an evidence-based rationale to justify those changes, and despite the NRC staff’s straightforward observations about the patient access questions that catalyzed the agency’s evaluation. SECY-20-0005 opined that NRC being a “gatekeeper” of minimum personnel requirements conflicted with the NRC’s long-standing Medical Policy Statement—a document which, having been finalized in August 2000, served as the foundation for the current AU T&E requirements. AU eligibility is not required for referring physicians to refer their patients to qualified treating physicians, so the notion that NRC’s regulations are “gatekeeping” the ability for patients to be offered these treatments by referring physicians is incorrect. Additionally, SECY-20-0005 counterintuitively suggested that changes would better incorporate emerging and more complex radiopharmaceutical therapies, though it was unclear how expanding AU eligibility to non-experts in radiation would be helpful for ensuring safety while using unsealed materials with greater risk and complexity. SECY-20-0005 left the scientific basis for the AU T&E components of the rulemaking plan to be examined in the future, essentially proposing a solution for an unsubstantiated problem. Finally, it added 10 CFR §35 Subpart D diagnostic uses to the rulemaking plan without public deliberation by ACMUI or public stakeholders, while leaving out sealed source therapies often provided by the same multi-modality licensees that offer advanced radiopharmaceutical therapies to patients.

The ACR has provided extensive input on AU T&E to the NRC staff and Commissioners, all of which is a matter of public record. The existing AU T&E requirements have protected public health and safety well and without undue burden. We continue to stand with the ACMUI and the radiological medical/scientific communities in supporting the existing NRC AU T&E requirements for unsealed materials. We urge the Commission, under your Chairmanship, to vote in opposition to the rulemaking plan described in SECY-20-0005, and—importantly—to discontinue expenditure of limited agency resources on exploring ways to weaken AU T&E against the advice of the medical use licensee community.

Issue 2: Extravasation/Medical Event Reporting (PRM-35-22)

The NRC is currently reviewing a petition for rulemaking (PRM-35-22) to require quantification and reporting as medical events under §35.3045 certain extravasations during injections of diagnostic and therapeutic nuclear medicine agents. PRM-35-22 was submitted by a vendor of novel injection site dosimetry devices and services of the kind that would effectively be necessary for regulatory compliance. If granted, the petition would essentially require licensees to make significant investments in novel monitoring systems and injection site dosimetry services to demonstrate compliance with an arbitrary reporting threshold below known somatic effects. Thus, without assuming motives, this would singularly drive market demand for the vendor's products.

As with SECY-20-0005, the request in PRM-35-22 was opposed by medical use expert communities concerned with the unpredictability and unavoidability of extravasation when best medical practices for intravenous (IV) access are followed. PRM-35-22 would represent a significant intrusion into practice of medicine by, for practical purposes, necessitating AUs to implement clinically significant changes to IV access methods and procedures (e.g., promoting use of central lines and vesicant protocols, etc.) to minimize the pressures and medico-liability implications of medical event reporting under §35.3045. There is no standard dose assessment methodology for measuring extravasate and converting to dose that has been adopted by the domestic radiological science community. The assumption-based methodology used by vendor-supported studies has been questioned.

NRC's Medical Use Policy Statement and long-standing justification for medical event reporting do not support PRM-35-22. Extravasation does not inherently indicate an error or other problem with a licensee's use of byproduct material. It is often unknown whether a given extravasation was caused by the patient's anatomical condition, involuntary or voluntary micromovement, a medical device issue, or a technically erroneous administration, as these instances can occur regardless of whether best medical practices for IV access were followed. The petitioner's own study referenced by PRM-35-22 demonstrated that patient-specific variables are the most important risk factors, and that extravasation cannot be avoided even by their novel injection site monitoring system and with specific focus on mitigation (note: the lead investigator of the petitioner's study also filed comments with NRC opposing PRM-35-22). The desired clinical outcomes of nuclear medicine agent administrations are often achieved regardless of any minor extravasations that may occur, and repeat imaging—though only a clinical quality interest and not an NRC-level safety concern—is often unnecessary. While monitored and recorded by providers as standard practice of medicine, there are no discernable lessons to be learned by regulatory agencies and other licensees from medical event reporting of insignificant extravasations. Institutions currently oversee IV access practices as a general clinical quality issue

impacting all injectable media, and there are far greater patient safety concerns associated with non-radioactive agents, such as high-volume contrast media and chemotherapy/vesicant agents. Most importantly, extravasations involving byproduct material rarely pose a practical safety concern to patients due to the radiation physics of the material and the nature of low-volume, expert-monitored administrations. §35.3045 is a serious regulatory mechanism with real-world clinical, professional, financial, and medicolegal consequences—there must be an evidence-based rationale with realizable benefits beyond mere data collection.

We also point out that the underlying rationale for PRM-35-22 directly contradicts one of the key assumptions of SECY-20-0005: that AU expertise is not required for therapeutic radiopharmaceuticals, and that these agents can be safely administered by clinicians without radiation expertise. PRM-35-22 would necessitate that AUs and AU-supervised personnel use novel monitor technologies and conduct complex and theoretical extravasate dosimetry to ensure compliance—resource-intensive duties that are difficult to imagine current AUs and nuclear medicine personnel having the wherewithal to complete on a routine basis, much less generalists and affiliated nursing staff who do not have radiological materials expertise.

The ACR recommended that NRC deny PRM-35-22 in our [November 2020 comment letter](#). We also recommended that, if further action is desired, NRC could categorize extravasation as a “patient intervention” under §35.2. This measured approach would continue to exempt clinically insignificant extravasation from §35.3045(a); however, hypothetical outlier cases in which a permanent injury determination has been made by the AU/physician would still be subject to the medical event reporting requirements under §35.3045(b). This would allow NRC to collect medical event reports on extremely rare extravasation incidents of serious radiation safety significance, while avoiding practice of medicine intrusions, novel technology acquisitions, IV access changes, and quantification and reporting of clinically insignificant incidents. We encourage the NRC staff and the Commissioners to consider our comments on this matter, which are aligned with multiple recent ACMUI recommendations on extravasation and patient intervention.

Issue 3: Elevating ACMUI and the Medical/Scientific Community

Moving forward, the ACR hopes the recent divide between the NRC and its medical/scientific communities on medical use issues will be remedied through appropriate policy decisions on the two previous issues, as well as consideration of other ways to elevate the ACMUI/physician and medical physicist perspectives. There are various options the NRC could consider, such as:

- Reexamining together with ACMUI members whether it would be appropriate for the advisory committee to advise the Commissioners directly, à la the Advisory Committee on Reactor Safeguards.
- Requiring ACMUI review and simultaneous submission of reports alongside any relevant NRC staff recommendations to the Commission that would have significant medical use implications.
- Requiring meaningful ACMUI physician and medical physicist representation on any internal working groups addressing medical use issues that include Agreement State representatives.
- Addressing commercial/disproportionate external influences on NRC’s medical use policy agenda. This could include a rulemaking to revise §2.803 to allow NRC consideration of financial

conflicts of interest of private company-petitioners prior to docketing petitions like PRM-35-22. This could also include collaboration between ACMUI and NRC's Office of Congressional Affairs to appropriately educate policymakers on complex medical use topics for which NRC's regulatory approaches have been called into question.

In conclusion, the ACR wishes the NRC success under your Chairmanship and we welcome further discussion with you and your team on all topics of shared interest, particularly the above pressing issues. We hope your tenure will see NRC appropriately elevate the expertise of the ACMUI and medical/scientific stakeholder communities, starting with opposition to weakened AU T&E and denial of PRM-35-22.

For questions or outreach on medical use issues, please contact Gloria Romanelli, JD, ACR Senior Director of Legislative and Regulatory Relations and Legal Counsel, Quality and Safety; and, Michael Peters, ACR Director of Legislative and Regulatory Affairs, at (202) 223-1670 or gromanelli@acr.org | mpeters@acr.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Howard B. Fleishon". The signature is fluid and cursive, with the first name being the most prominent.

Howard B. Fleishon, MD, MMM, FACR
Chair, Board of Chancellors
American College of Radiology