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NRC Public Meeting: Security and Continued Use of Cesium-137 Chloride Sources

Topic 3.1 – Possible Phase Out of CsCl Sources – Potential Rulemaking Issues and Justification for Regulatory Change

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American College of Radiology (ACR) – Overview

- ACR is a professional association representing approximately 32,000 radiologists, radiation oncologists, interventional radiologists, nuclear medicine physicians, and medical physicists.
- The mission of the ACR is to serve patients and society by maximizing the value of radiology, radiation oncology, interventional radiology, nuclear medicine and medical physics by advancing the science of radiology, improving the quality of patient care, positively influencing the socio-economics of the practice of radiology, providing continuing education for radiology and allied health professions and conducting research for the future of radiology.
- ACR is headquartered in Reston, VA, with a government relations office in Washington, DC, and a clinical research office in Philadelphia, PA.

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Use of CsCl by the ACR Community

- The ACR membership uses cesium-137 chloride sources for patient care and biomedical research applications:
  - **Medical physicists** are involved with the radiation safety aspects of CsCl sources in medical and scientific settings.
  - **Radiation oncologists / academic radiologists / investigators** are involved with research using CsCl sources. Others groups have submitted written statements addressing the various biomedical research applications of CsCl sources and specific concerns of the research community.
- CsCl sources are used in medical settings primarily in blood irradiators because of the relatively long half-life, reliability, and low maintenance requirements compared to alternatives.

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Pertinent Questions on Topic 3.1: Possible Phase Out of CsCl Sources – Potential Rulemaking Issues (1/3)

- Q3.1-1. (a) What would be the medical consequences if CsCl was to be banned for medical (e.g., blood) irradiators? (b) What would be the impact to existing and future biomedical research using these devices? (c) Can alternative technologies be used for medical applications and/or biomedical research (research on animals and tissue?)

  (a) More research needs to be done on the clinical and commercial viability of the alternatives to CsCl irradiators. There is not a consensus in the medical community on the recommendations of the NAS study.

  (b) Other groups have discussed the implications for biomedical research of a potential ban. These groups recommend grandfathering CsCl sources currently in existence.

  (c) Alternatives may not be feasible for current research projects relying on data from, and work with, CsCl irradiators. This aspect needs to be explored before action is taken to limit access to CsCl.

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Pertinent Questions on Topic 3.1: Possible Phase Out of CsCl Sources – Potential Rulemaking Issues (2/3)

- Q3.1-3. What would be the economic consequences to users if CsCl was to be banned?
  - Potential answers to this question could vary depending on a number of factors:
    - What are the circumstances of the ban? Is it a long-term "phase out" approach, grandfathering CsCl sources currently in use?
    - What are the costs of premature decommissioning, storage, disposal, etc., of existing sources? Which expenses will the federal government cover or help cover? Will financial incentives be given to licensees who are required to purchase alternatives to CsCl?
    - What are the blood banks saying about the short- and long-term financial impact of no longer having access to self-shielded CsCl irradiators for patient care?
    - What are scientific investigators saying about the financial and opportunity cost of discontinuing access?

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Pertinent Questions on Topic 3.1: Possible Phase Out of CsCl Sources – Potential Rulemaking Issues (3/3)

- Q3.1-5. (a) Should the NRC discontinue all new licensing and importation of these sources and devices?
  - This question cannot be answered until all information is collected from stakeholders, including the comments submitted after the public meeting and an in-depth review of the medical-scientific literature for comparisons of CsCl versus the alternatives.
  - Other groups, including the NRC Advisory Committee on the Medical Uses of Isotopes (ACMUI), have conducted evaluations of the recommendations of the NAS study. These evaluations should be explored further.
  - If, after reviewing of all available resources, a ban of new licenses for CsCl is determined to be the best path forward, NRC should consider grandfathering CsCl irradiators currently in use for patient care and research. Additionally, NRC should explore federal compensation / financial incentives if licensees are forced to transition to alternatives.

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