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Mail Stop T–6D59,
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Washington, DC 20555–0001

7/31/08
73FR 44780
(17)

Re: Docket ID: NRC–2008–0419.

Sir,
I write as the Radiation Safety Officer of a small institution which has used a Caesium-137 Chloride sourced Gamma Irradiator for biological research for nearly forty years. The following areas of enquiry appear to me to be important and have not been adequately addressed by the NAS proposal, leading to the fallacious conclusion that phasing out Caesium-137 Chloride sources will improve the safety of the United States:

1) Quantification of Risk from Caesium-137 Chloride Sources

The risk from these sources is well understood from both the radiological and the terrorist misuse aspects. This has lead to the recent substantial increase in the physical and procedural security required of licensees of large Caesium-137 Chloride sources, presumably with a corresponding substantial decrease in the threat they present. On the other hand the risk from hazardous materials readily available in industrial quantities and held in relatively low security environments throughout the US remains high and unmitigated. By any reasonable comparison this would indicate the phasing out of Caesium-137 Chloride sources to be an unreasonable over response, providing little in the way of an improvement in the general threat environment.

2) Scientific Imperatives

For a number of reasons (primarily availability and the lack of a practical substitute), Caesium-137 Chloride sourced irradiator use has become a standard for biological research over several decades and across the gamut of research areas. The phasing out of Caesium-137 Chloride sources with no available equivalent with which to replace them will result in a sudden break in the compatibility and comparability of data - before and after the phase out and subsequently between different research institutions who will presumably try to replace the Caesium-137 Chloride sourced devices with any one of a number of replacement devices of varying efficacy. Differences in dosimetry and biological effect can be expected when radiation sources are used which deliver primary photon energies and an energy spectrum different from Caesium-137. The loss of direct comparability and the complexities of correcting data for these changes must be of great concern and the decision to initiate this situation cannot be taken lightly.

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3) Are there any practical substitutes for Caesium-137 Chloride sources?

Several other methods of irradiation have been suggested. To a greater or lesser extent they are unsatisfactory for all or some of the following reasons:

i) Limited equivalence to Caesium-137 in terms of dosimetric and biological effect resulting in poor data comparability. (see 2) above);

ii) Increased Costs (often prohibitive) - this would include disposal costs for the existing Caesium-137 Chloride sources, replacement costs for new sources and for the facilities in which they are housed, and maintenance costs. For example, linear accelerators, unlike Caesium-137 Chloride sourced irradiators, are not stand-alone shielded devices, and require large expensive shielded building to house them;

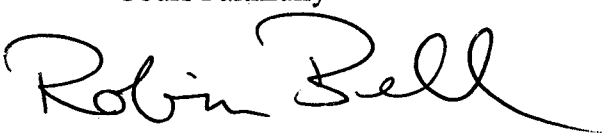
iii) Inadequate performance - the capacity and work cycles of high energy x-ray devices are inadequate to provide the throughput required for many applications which Caesium-137 Chloride sources handle quite readily;

iv) Suggested technology often does not exist in a presently usable form - high energy x ray devices capable of delivering a photon spectrum in any way similar to Caesium-137 do not appear to be on the market; non-Chloride Caesium-137 sources of the required specific activity are not available;

v) Time to remove Caesium-137 Chloride sources from operation - Presumably it is desirable to continue the research which would be affected by a phase out. Because of the all the above reasons the time taken to accomplish a phase out without compromising research must be extended to allow funding to be acquired, technology developed, equipment manufactured etc. etc. If there is a risk from Caesium-137 Chloride then an extended phase out period is hardly going to mitigate that risk at any point in the near future.

I am sure that these points will be made by others who are more qualified to write of them and will do so in a more eloquent fashion. In summary, I think that the case for the phase out of Caesium-137 Chloride sources is erroneous, based, as it is, almost entirely on an assumption of a risk which has been unrealistically elevated far beyond that presented by other hazardous materials, which are both more common and arguably more readily available to terrorist organizations. It seems that we will wash the baby out with the bath water without stopping to think why this might be a bad thing. Thank you for your attention.

Yours Faithfully



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