INDIANA UNIVERSITY
DEPARTMENT OF PEDIATRICS
School of Medicine

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Michael T. Lesar
Chief, Rulemaking, Directives, and Editing Branch
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

7/31/08
73 FR 44780
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Re: 'Security and Continued Use of Cesium-137 Chloride Sources,' (NRC-2008-0419)

Dear Mr. Lesar and NRC members,

As a scientist whose research depends on the use of a ^{137}Cs irradiator for small animal transplant and cell experiments, as well as a bone marrow transplant physician whose patients depend on ^{137}Cs irradiated blood products, I urge the NRC to proceed with caution in considering a ban on the use of ^{137}Cs irradiators. Discontinuing the use of ^{137}Cs irradiators would cripple biomedical research in many areas, such as cell biology, hematopoiesis and bone marrow transplantation, as well as the clinical use of irradiated blood products. The use of small ^{137}Cs irradiators in blood banks and research facilities would be very difficult to replace in a cost-effective manner. Alternative radiation sources, such as ^{60}Co and X-irradiators are used for human radiation therapy. However, the radiation provided by these sources may have different biological effects on blood cells and small animals compared to ^{137}Cs. The vast majority of the basic science and pre-clinical (i.e., animal) work has been done with ^{137}Cs; switching to an alternative source would potentially be catastrophic from scientific and economic perspectives. Significant time (years) and effort would be needed to determine and validate radiation doses and deliveries from alternative sources, which would cost millions in NIH funds to accomplish (in addition to the loss of progress in ongoing research), and future results could not be directly compared to many years of established data using ^{137}Cs. This would have a tremendously detrimental effect on my research in hematopoietic stem cell and mesenchymal stem cell biology and transplantation. Furthermore, one must also consider the costs and security of disposing of currently-used ^{137}Cs irradiation sources which employing the new sources. I realize the potential security risk of ^{137}Cs irradiators; however, if utilized in conjunction with appropriate security measures, in my opinion the research benefits greatly outweigh the potential security risks.

In summary, biomedical research as well as transfusion medicine depends on the use of ^{137}Cs irradiators, which cannot easily be replaced by alternative sources. I would strongly urge you to allow the scientific community to continue the use of ^{137}Cs

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irradiators, with appropriate security measures. In this manner, biomedical research can continue unimpaired while efforts are made to develop more secure sources of radiation for biomedical research, such as ^{137}Cs irradiators which have a truly solid core source (unlike current CsCl irradiators), or validation and development of research-grade irradiators using currently-available alternative sources occurs, each of which are likely to take years to implement.

Please note that these comments are my personal view and should not be taken to represent that of Indiana University.

Sincerely,

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