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St. Luke's Medical Center



Aurora HealthCare

July 1, 1994

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Regulatory Publications Branch
DFIPS
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

B. MORRIS
59 FR 33795
6/30/94

Dear Sirs:

I am writing to comment on draft Regulatory Guide DG-8015, "Release of patients administered radioactive materials." (1)

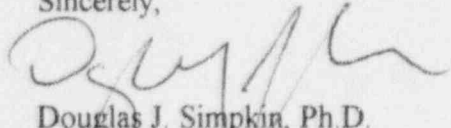
While I generally agree with the spirit and procedures in the draft regulatory guide, I would like to remind the Commission that low energy photons will be attenuated not only in the body of the patient, but also in the overlying tissues of an irradiated bystander. The exposure calculated in Appendix A of the draft guide may therefore exceed the effective dose equivalent, depending on the orientation of the bystander in the photon beam. Table 3a of report number 51 of the ICRP has conversion factors from exposure in R to effective dose equivalent in 10^{-2} Sv (that is, rem). I enclose a graph of this data. The graph shows that effective dose equivalent, H_E , is greatest for anterior incidence on the bystander at all energies. For a photon beam that exposes the bystander randomly from all sides, H_E is $\sim 3\%$ below that for anterior incidence.

Please note the very sharp rise in the curves of H_E per exposure at low photon energies. In the 25-35 keV range of ^{125}I photon emissions the H_E in rem is not more than half that of the exposure in R for anterior incidence and $\sim 1/4$ of that for rotational symmetry. Lower energy scattered photons emanating from the patient will only lower this conversion of exposure to dose.

I therefore submit that an additional factor of $1/4$ to $1/2$ may be conservatively multiplied onto the equation for dose from ^{125}I (Equation A-10 in the Regulatory Guide).

Please feel free to contact me at (414)649-6457 should you have any questions on this matter.

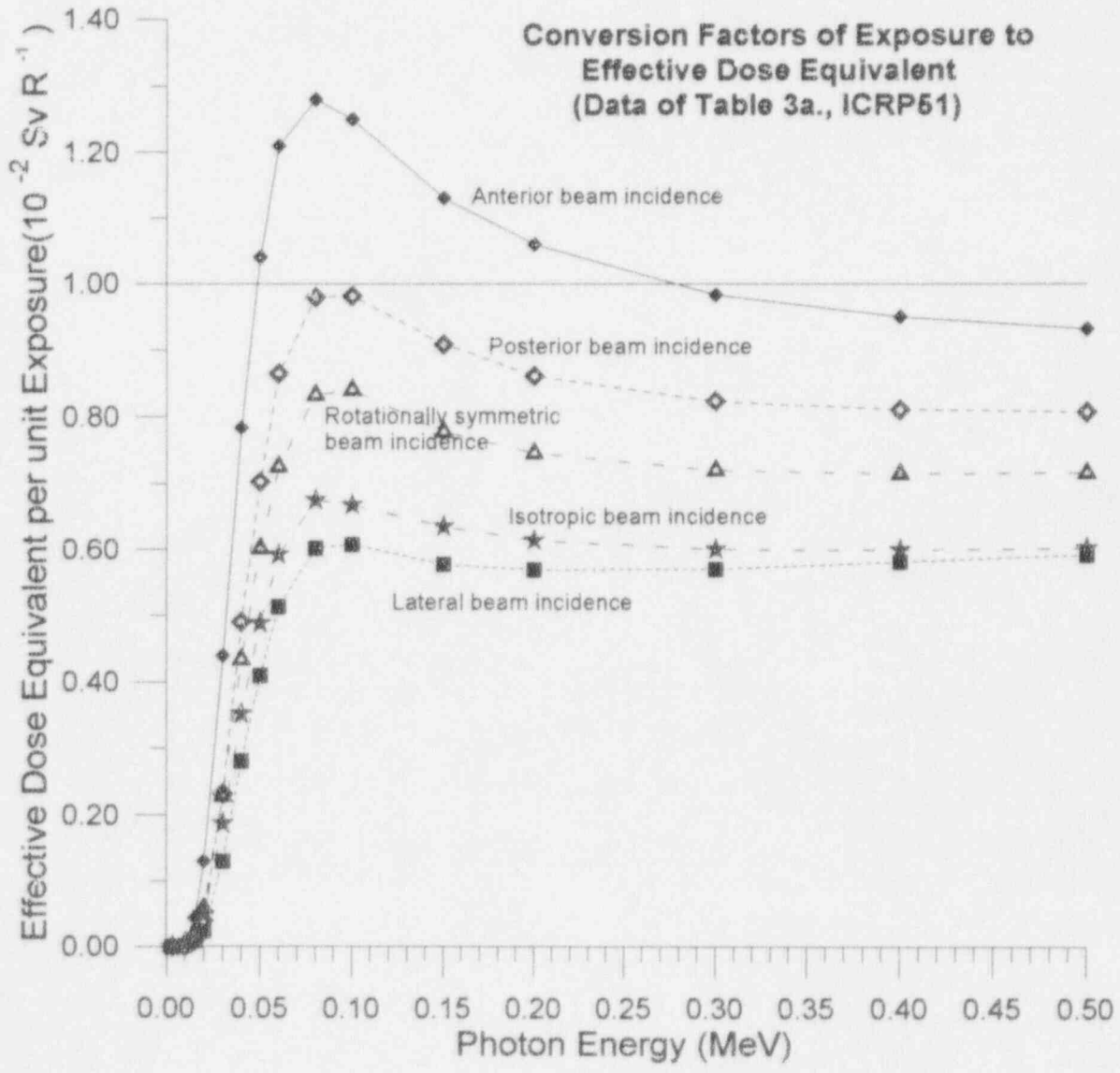
Sincerely,


Douglas J. Simpkin, Ph.D.
Certified Radiation Physicist

enc

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PDR REGCD
GENERAL PDR

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7/1/94
 Douglas J. Simpkin
 Comment on Reg Guide DG-8015