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June 14, 1968

Mr. Ralph M. Baltzo, Director
Radiological Safety Division
University of Washington
Seattle, Washington 98015

Dear Mr. Baltzo:

Mr. C. E. Newton, Jr. has referred to me your questions of May 28, 1968, concerning the dosimetry work for Dr. C. Alvin Paulsen's experimental program as reported in BWL-589.

The data in Table 1 on page 10 are accurate to within +20% and -50%. We feel that the measurements are limited by the state-of-the-art of dosimetry and because of the low dose rates available from the facility at 2.5 McV further measurements cannot improve on this accuracy.

The measurements of the dose to the location of the eye and the base of the sternum may be anomalously high because of neutron leakage along the interface between the phantom and the pedestal upon which it lies and possibly along the accelerator beam tube. I feel that within the limitations imposed by the accelerator, the size of the room, the physical and psychological comfort of the volunteer, and the peculiar character of neutrons, we have done as well as can be expected in reducing the dose to other regions. No amount of shielding or redesign will be effective and still leave a usable facility.

The dosimeters for measuring the dose in the region of the prostatic urethra and trigone area of the bladder were each at a distance of 7 ± 1.5 cm from the anterior of the pubic bone of the phantom which in turn was about 15 cm from the source. On the basis of these distances and assuming $1/r^2$ attenuation, which places a lower limit on the expected dose, the dose to the prostate area does not appear to me to be low. If you have any further questions or require any other clarifications, please feel free to call on us.

Very truly yours,
ORIGINAL SIGNED BY
W. E. WILSON
W. E. Wilson, Ph.D.
Manager
Radiological Physics Unit

WEW/dda

cc: Dr. C. Alvin Paulsen
Peter Wooton
C. E. Newton, Jr.
K. L. Swinth

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