



Radiation Safety Department

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MEMO

DATE: April 12, 2005

TO: James Parks
Department of Physics

FROM: Chris Millsaps
Director and Radiation Safety Officer
Radiation Safety Department

SUBJECT: Dose Determination for experiment involving the Tel-Atomic analytical x-ray unit and the Cs-137 Sealed Source.

On April 12, 2005 this department performed measurements to determine the estimated dose to a radiation worker in your lab performing experiments using the Tel-Atomic x-ray unit and using the Cs-137 sealed source. These results of these measurements and calculations are listed below. All measurements were made using a Bicron :Rem meter, calibrated 11/02/04, with a background of 0.005 mRem/hour.

Personnel Monitoring Determination Worksheet

P.I. Dr. James Parks

Control# 35

Tube Mfgr. Tel-Atomic

Tube 1 of 1

Tube s/n TEL-581-016209

Room Number Nielsen 303

Max. kVp: 30 mA: N/A Max. time used: (A) 4 hours/year

Position Location: Maximum exposure @ operators location

Measurement @ above position: (B) 0.005 mRem/hr

Sum of workload factors for each position: (A x B)

0.002mR/year

Personnel Monitoring Determination Worksheet

P.I. Dr. James Parks

Sealed Source Type: Cs-137

Sealed Source Activity 5 mCi

Sealed Source 1 of 1

Tube s/n TEL-581-016209

Room Number Nielsen 303

Max. time used: (A) 24 hours/year

Position Location: Maximum exposure @ operator's location

Measurement @ above position: (B) 0.005 mRem/hr

Sum of workload factors for each position: (A x B)

0.120 mR/year

The Tennessee State Regulations for Protection Against Radiation require, in part, that personnel monitoring devices be provided to any radiation worker that might exceed 10% of the annual limits (500 mRem/year). The above calculation estimates the total effective dose equivalent from both of these experiments to be **0.122 mRem/year**. This is well below the requirement for personnel monitoring devices. However, in order to remain in compliance, we must provide each trained radiation worker in your lab with a copy of this estimate prior to performing any experiments. Should any of detail of the above experiments change, a new dose determination will be required. Please notify the Radiation Safety Department prior to instating changes.



Original signature on file at Radiation Safety Department

Chris Millsaps

Radiation Safety Officer