



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC WELFARE

SCRANTON STATE GENERAL HOSPITAL
Scranton, Pennsylvania 18501

May 21, 1987

TELEPHONE NUMBER
AREA CODE 717, 961-4211

John Kinneman
Chief, Nuclear Materials Safety Section E
Division of Nuclear Safety & Safeguards
U.S. Nuclear Regulatory Commission
Region I, 631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Kinneman:

With regard to your letter of 4-21-87 concerning the inspection 86-01 (Docket No. 030-12627) by Mr. V. Scovill of our hospital, we submit the following information that you requested.

Until our variance is granted (in our license renewal request of 2-6-87) we will do our wipe tests over 300 cm^2 , allowing a minimum detectable activity (MDA) of 6,600 disintegrations per minute (d/m) sensitivity required. We will use our gamma camera with the collimator removed.

$$\text{MDA (d/m)} = 2 \sqrt{\frac{R_B}{t} \left(\frac{1}{S+B} + \frac{1}{t_B} \right)} \quad (\text{cpm}), \text{ when}$$

$$\text{Efficiency} \left(\frac{\text{CPM}}{\text{DPM}} \right)$$

R_B = Background count rate
 t_{S+B} = total sample counting time
 t_B = background counting time

If $t_{S+B} = 30$ minutes and $t_B = 30$, and $R_B = 5000$, and our consultant radiation physicist measures the efficiency of our gamma camera for Tc-99m w/o a collimator, sample in a rubber glove on the aluminum crystal housing surface to be 0.6% or 0.006 in decimal form, then the MDA = 6083 d/m, which is less than the 6600 required. Since our Nuclear Medicine Department is not fully utilized, there is time to count the samples at 30 minutes each.

Efficiency measurement : Tc-99m assayed in dose calibrator
0.2 uCi - 0.1 uCi (bkg.) = 0.1uCi net = 220,000 d/m
The sample counted 1320 c/m net (6320 - 5000 background = 1320)

$$\frac{1320 \text{ c/m}}{220,000 \text{ d/m}} = 0.006 \text{ or } 0.6\% \text{ efficiency}$$

This is a better efficiency due to better geometry; however, the background count is higher than in our renewal request of 2-6-87 to John Glenn.

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37-17364-01 PDR

Mr. Kinneman

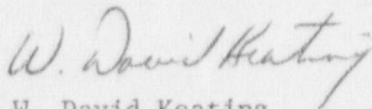
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We feel we can remain in compliance, albeit marginally, until our variance is granted with regard to wipe-testing for radioactive contamination with our existing equipment.

If you have any technical questions pertaining to this letter, please call our consultant radiation physicist, Walter L. Robinson, M.S. at (717) 291-9813. Please confirm in writing your satisfactory receipt and acceptance of our above explanation.

Sincerely,

A handwritten signature in cursive script, reading "W. David Keating".

W. David Keating
Administrator