

The Van Wert County Hospital

1250 South Washington Street

Van Wert, Ohio 45891

419-238-2390

October 6, 1981

Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Gentlemen:

In reference to the notice of violation dated September 3, 1981 relating to the inspection conducted by Mr. Reichhold, the following measures have been instituted.

On September 18, 1981 our CRC-8 dose calibrator was returned following repairs. A check for geometric variance and linearity was performed on our returned calibrator.

Attached you will find a copy of the linearity check performed by Capintec on May 26, 1981 on the loaner CRC-4. The geometric tests which were performed on the loaner CRC-4 are also attached.

In the situation that the acquisition of a loaner dose calibrator be necessary in the future, we will be sure that linearity and geometric variance tests are performed by the company providing the loaner before we accept such into use.

It is affirmed that the above information is true, and full compliance is achieved as of the dates on the accompanying test sheets.

Sincerely,

Jon M. See
President

JMS/jb
Attachments

ANITA L. MORELAND
NOTARY PUBLIC, STATE OF OHIO
My Commission Expires Apr. 6, 1985

8110290408 811022
NMS LIC30
34-17025-01 PDR

OCT 8 1981

LINEARITY TEST

Linearity of the chamber is tested by comparing the ratio of chamber outputs for high activity and low activity Tc-99m samples to that from the standard chamber.

 ✓ < 5% saturation at 2 Ci
 > 5% saturation at 2 Ci

REMARKS

Date: 5-26-81

R. Lindellberg
Test Engineer

DOSE CALIBRATOR GEOMETRY EVALUATION

FACILITY	<i>Van Wert Co. Hosp</i>	LOCATION	<i>Van Wert, Ohio</i>
DEPARTMENT	<i>Nuclear Medicine</i>	ATTENTION	
MANUFACTURER	<i>Capintec</i>	DATE	<i>9-24-81</i>
SOURCE	<i>Tc99m</i>	SETTING	<i>080</i>

A. Variation in Volume Response

- This test was performed by placing a droplet or two of radioactivity consisting of approximately 2 mCi of Tc-99m into a 30 ml vial or largest vial being used in this facility. The vial was assayed in the chamber and background subtracted for net activity. The volume of the liquid in the vial was increased in steps to 2, 4, 8, 10, 20 and 25 ml by adding appropriate amounts of water or saline. A 4 ml volume was selected as a standard and ratios of measured activities to the reference volume activity calculated. This ratio is the correction factor.

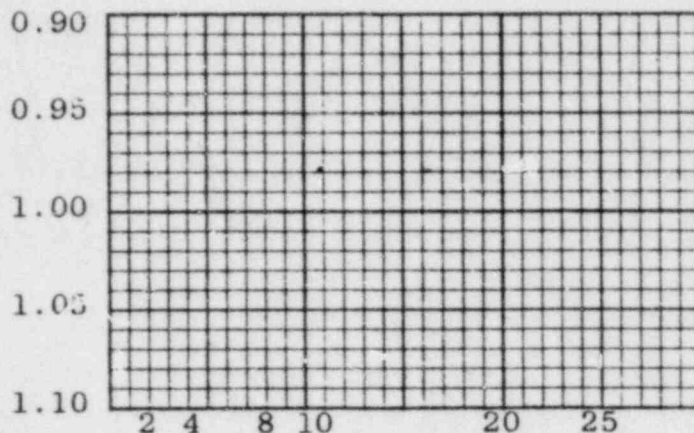
<u>VOLUME</u>	<u>ACTIVITY DISPLAYED</u>	<u>CORRECTION FACTOR*</u>
Drop or two	<u>1.90 mCi</u>	<u>1.00</u>
2 ml	<u>1.90</u>	<u>1.00</u>
4 ml	<u>1.90</u>	<u>1.00</u>
8 ml	<u>1.90</u>	<u>1.00</u>
10 ml	<u>1.89</u>	<u>1.00</u>
20 ml	<u>1.89</u>	<u>1.00</u>
25 ml	<u>1.89</u>	<u>1.00</u>

- *Correction Factor = $\frac{4 \text{ ml volume activity}}{\text{activity displayed}}$

The correction factors were then plotted versus volume on linear graph paper. (See reverse side)



C.F.



VOLUME (ml)

The true activity of the sample is calculated as follows:

TRUE ACTIVITY = MEASURED ACTIVITY x C.F.

B. Vial/Syringe Comparison

This test is designed to note differences between activities measured in glass vials versus plastic syringes. This test was performed by assaying the stock vial before and after filling a syringe. The activity in the syringe should be the difference in the two readings (with a volume correction, if significant).

Vial Assay before syringe fill (x C.F.) 1.89 mCi

Vial Assay after syringe fill (x C.F.) 1.51

Calculated activity in syringe 0.38 (A)

Assay of syringe 0.36 (B)

Correction Factor = $\frac{A}{B}$ = 1.05

C. COMMENTS: No correction factors necessary for daily usage

John Finell
Consultant

GEOMETRIC VARIANCE TEST ON CPC-4
LOANER CALIBRATOR FROM CAPINTEC

Performed as followed

½cc. of Technetium 99m was placed in a syringe.
The volume was increased by units of 1cc. of
water until 10cc. had been added. Results are
as follows:

½cc.	.910 mCi
1cc.	.909 mCi
2cc.	.909 mCi
3cc.	.909 mCi
4cc.	.906 mCi
5cc.	.906 mCi
6cc.	.905 mCi
7cc.	.905 mCi
8cc.	.903 mCi
9cc.	.903 mCi
10cc.	.902 mCi

Less than 1% variation in volumes up to 10cc.
Volumes used in this department rarely exceed 1cc.
and to date have not exceeded 2.5cc.

Karen L. Johnson R.T.
Karen Johnson, R.T.
8-24-81