

August 30, 1985
Bridgeport, CT

John D. Kinneman, Chief
Nuclear Materials Safety Section A
Division of Radiation Safety and Safeguards
United States Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

MS 18
KO

Dear Mr. Kinneman:

This is in reference to your letter dated 7/26/85 regarding our application for a byproduct materials license. Please refer to Mail Control No. 03946. The following information and modifications are supplied, as requested:

- 1) Item 10 of the application has been modified to include a Ba-133 accuracy and constancy test source. An amended copy of item 10 of the application, "Calibration of Dose Calibrator", is attached.
- 2) The shielding that we will use will include a commercial nuclear medicine L-block (with a leaded window above a $\frac{1}{2}$ " thick lead wall) on the counter top for the preparation and dispensation of Group III kit radiopharmaceuticals. Amended copies of item 11 to our application are attached.
- 3) Our "Instructions for Opening Packages Containing Radioactive Material" has been modified to include notification of the NRC Region I Office if removable contamination exceeds $0.01 \mu\text{Ci}/100\text{cm}^2$, or if external radiation levels exceed 200mR/hr at the package surface or 10mR/hr at 3 feet.

Sincerely,

John A. Creatura M.D.
John A. Creatura, M.D.

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CALIBRATION OF DOSE CALIBRATOR

A Sources Used for Linearity Test

(Check as appropriate)

 X First elution from new Mo-99/Tc-99m generator (only when using generators)

or

 X Other* (specify) ~50 mCi Tc-99m (the most active source vial received from our supplier)

B Sources Used for Instrument Accuracy and Constancy Tests

<u>Radionuclide</u>	<u>Suggested Activity (mCi)</u>	<u>Activity (mCi)</u>	<u>Accuracy</u>
Co-57 (NES-206)	3-5	<u> 5 </u>	<u>5% (99% confidence)</u>
Ba-133	0.1-0.5	<u> 0.25 </u>	<u>5% (99% confidence)</u>
Cs-137 (NES-356)	0.1-0.2	<u> 0.2 </u>	<u>5% (99% confidence)</u>
Ra-226	1-2	<u> </u>	<u> </u>
<u> </u>		<u> </u>	<u> </u>

C. X The procedures described in Section 2 of Appendix D will be used for calibration of the dose calibrator

or

 Equivalent procedures are attached.

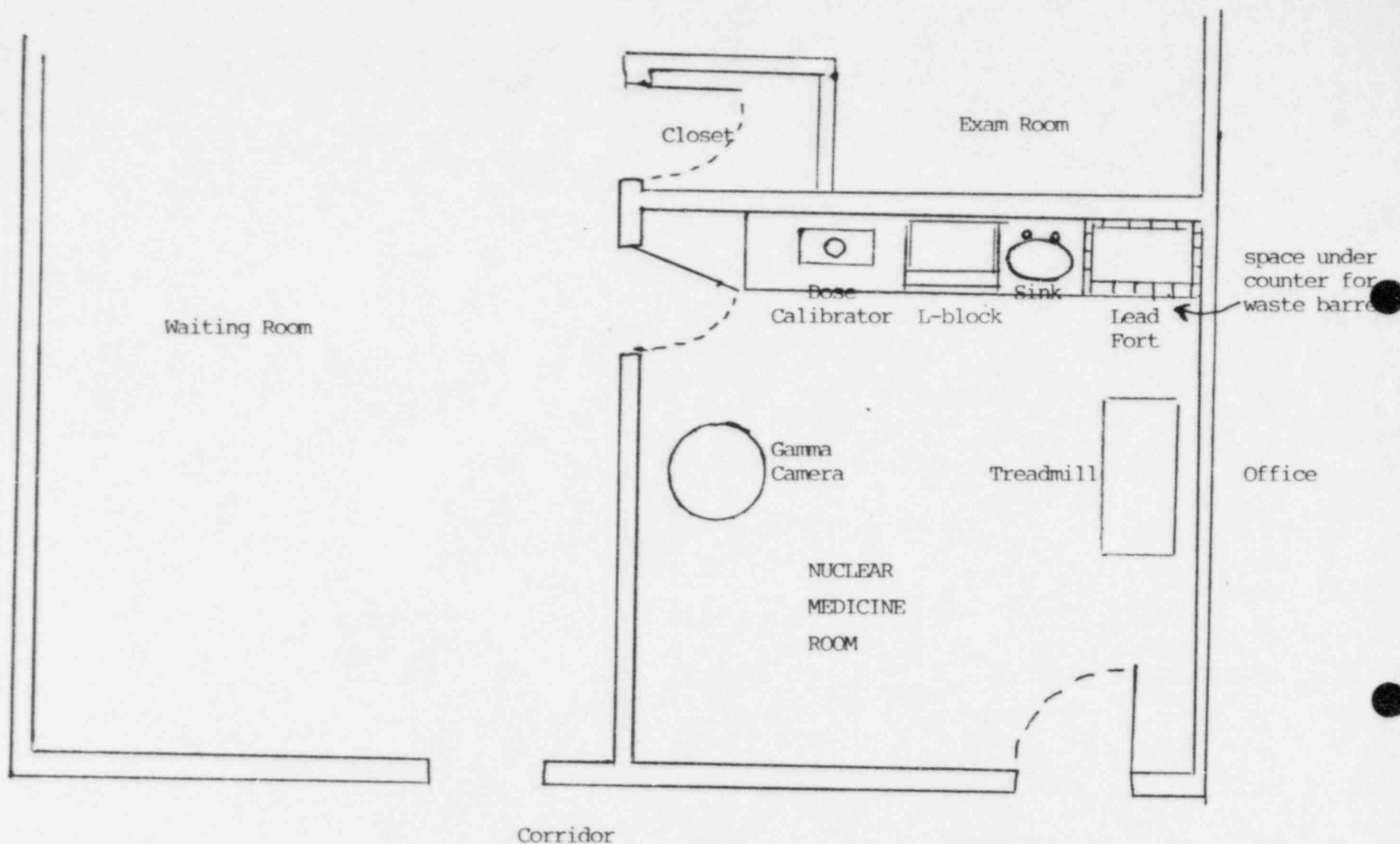
*For licensees who are not authorized for Mo-99/Tc-99m generators, activity must be equivalent to the highest activity used.

Facilities and Equipment

The nuclear medicine room shown on the accompanying sheet will be used for the receipt, storage (including waste), and preparation of radioactive material, as well as for patient imaging.

Radiopharmaceuticals, generators (when needed) and calibration sources will be stored in the lead fort, with sufficient shielding (mainly 2-inch thick lead bricks) to limit radiation levels in all accessible areas to less than 2mR/hr.

An L-block with a lead-acrylic or lead-glass window will be used for preparation and dispensation of radiopharmaceuticals. The counter top area will be covered with disposable pads during preparations, and both auxiliary shielding (lead bricks) and protection utensils (forceps, tweezers) will be available. Radioactive waste being held for decay will be stored in containers beneath the counter top, and shielded with sufficient lead or other material to maintain radiation levels in all accessible locations at less than 2mR/hr. The room shall be so shielded that radiation levels in surrounding unrestricted areas are less than 0.2mR/hr.



Lead fort construction:
lead bricks, 2" thick

Scale: 1/4" = 1'

Item 11

5/15/85

Instructions for Opening Packages Containing Radioactive Material

- 1) Log with appropriate identification in the package monitoring log book the receipt of any package containing radioactive material.
- 2) Without touching the package, visually inspect it for any sign of damage (e.g., wetness, crushed). If damage is noted, stop procedure and notify the Radiation Safety Officer (RSO). The RSO will take appropriate actions.
- 3) Put on disposable gloves (even if package appears intact).
- 4) Measure and record the maximum exposure rate 3 feet from the external surface of the package (use the GM survey meter, set to the 0 - 20mR/hr range). If the reading is greater than 10mR/hr, stop the procedure, immediately place the package in the lead storage area, and notify the RSO. The RSO will notify the NRC Region I Office, and take other appropriate actions.
- 5) Measure exposure rate at the surface of all (six) sides of the package (use the GM survey meter, set to the 0 - 200mR/hr range). Do not actually touch the box with the bare probe, since this will contaminate the probe if the box surface is itself contaminated. Record maximum reading. If greater than 200mR/hr, stop the procedure, immediately place the package in the lead storage area, and notify the RSO. The RSO will notify the NRC Region I Office, and take other appropriate actions.
- 6) Carefully open the outer package (following manufacturer's instructions, if supplied) and remove packing slip. Visually inspect the packing material for any sign of damage (e.g., wetness, stains, other unusual markings). If damage is noted, stop the procedure and notify the RSO.
- 7) Carefully open the inner package (normally a leaded container) to verify and visually check the integrity of the final source container (normally a glass vial or syringe). Compare requisition, packing slip and bottle label. If intact, the inner container and its contents should be stored in the designated area (normally the lead storage cave).
- 8) Take wipes of the external surfaces of the final source container, and remove to a low background area. Monitor wipes with a sufficiently sensitive instrument (use the GM survey meter, set to the most sensitive range, with the thin end window open). Record both background and wipe readings. If any wipe exceeds background, notify the RSO. If removable contamination exceeds $0.01\mu\text{Ci}/100\text{cm}^2$, the RSO will notify the NRC Region I Office.
- 9) Monitor all disposable packing material with a sufficiently sensitive instrument (use the GM survey meter, set to the most sensitive scale). If any radiation above background is detected, treat the material as radioactive waste. Otherwise, obliterate all radioactive labels and dispose in the normal trash.