Roanoke
Memorial
Hospitals

November 7, 1989

An Affiliate of **CARILION** *Health System*

Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Re: Docket #030-20060
License #45-01291-04MD
Notice of Violation

Gentlemen:

This letter is hereby submitted to the Nuclear Regulatory Commission as fulfillment for the required response to Severity Level IV violations ascertained during inspection of Radiopharmacy License #45-01291-04MD, conducted on September 15, 1989:

Regarding violation #1, whereby geometrical dependence for a 3 cc syringe had not been previously determined for Capintec Model CRC 10 and 17 dose calibrators, prior to distribution of these syringes; the following action has been taken:

1. We do acknowledge that this geometric dependence had not been previously ascertained.

2. The reason for this violation occurring was oversight.

3. Correction to this preceding action has been made, whereby the 3.0 cc syringe was tested for geometric dependence by the drawing of 0.5 ml, 18.2 mCi of Technetium 99m into the syringe and obtaining a dose calibrator reading against a standard. Volume of the syringe was increased in 0.5 ml increments by adding 0.9% sodium chloride up to a volume of 3.0 ml. Measurements were made at each 0.5 ml increment showing an overall geometric dependence at the maximum volume of 3 ml of 3%. This test was run for both the CRC-10 and the CRC-17 dose calibrator, and will be incorporated appropriately into dosimetric determinations.

4. In order to avoid further violations, a more cognitive review of licensing conditions will be maintained.

5. Date of full compliance is October 15, 1989.

With regard to violation #2, whereby patient rooms used for therapeutic treatments with Iodine-131 were not determined to be free of contamination down to 200 dpm/100 cm^2, the following has been implemented:

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1. The violation as stated is admitted.

2. The following instrumentation and contamination survey procedures were in effect at the time of this violation and were considered adequate.

   a. The patient rooms in question, i.e. #421, #422, and #1221, have always been surveyed prior to reassignment for general occupancy.

   b. The radiation survey instrument used for those surveys was

      1. Meter: Victoreen Thyac III, Model 490, Serial #3277
      2. Probe: Victoreen Model GM-489-35 with a thin end mylar window
      3. Last calibration date: 7/15/89 for Cs-137 gamma-ray energy
      4. Minimum detectability: 450 dpm for I-131 gamma-ray energy

   c. The established procedures for determination of contamination were

      1. All removable items, e.g. clothing, linen, solid trash, medical supplies and instruments, were monitored using the above noted survey meter. Any item measuring greater than 0.02 mR/hour (normal background reading) was considered contaminated and removed to the decay-in-storage area.

      2. All nonremovable items, e.g. tub, sinks, toilets and flooring, were surveyed with the same meter. If contaminated, same level as in (1.) above, on-site decontamination procedures would have been commenced. Wipe tests were taken initially to determine if the contamination was removable. These wipes were placed in separate test tubes and sealed. The wipes were measured for radioactivity using a NaI scintillation well counter detector coupled to a multichannel analyzer (MCA)

         a. Nuclear Data - ND62 MCA, Model 880708, Serial #81055
            Minimum detectability: 20 dpm for I-131 gamma-ray energy

Previous NRC inspection reports did not refer to this instrumentation or procedures as being in non-compliance.

3. On 9/18/89, these three rooms were surveyed using the instrumentation described in 4.) No radioactive contamination was measured.

4. The following corrective steps have been instituted:

   a. The same survey meter as noted in 2.b. is employed. The probe has been changed to the following:

      1. NaI (Tl) scintillation probe
         Victoreen Model 489-50, Serial #2056
         Minimum detectability: 185 dpm for I-131 gamma-ray energy

b. A contamination level of greater than 200 dpm/100 cm will be established.

c. The previously established procedures for handling contaminated items and areas will be continued.

5. Effective date for these corrective steps was October 2, 1989.

We appreciate these matters being brought to our attention, and trust that this response fulfills our obligation regarding appropriate documentation. If you have any questions, please feel free to contact us at your convenience.

Respectfully submitted,

Houston L. Bell, Jr., Chief Operating Officer
Roanoke Memorial Hospitals

pc: Mr. William E. Cline, Regional Administrator, Region II (NRC)
Mr. Robert E. Lee
Mr. Stephen Purves
Radiation Safety Office

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