30-20364

MID-PACIFIC MEDICAL PHYSICS
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June 13, 1985

Ms. Beth Riedlinger
Health Physicist (Licensing)
U. S. NRC Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

Dear Beth:

The following (and enclosed) is a replacement for my 5/7/85 correspondence and addresses the points you spoke with Don about recently over the telephone. Mid-Pacific Medical Physics has recently assumed the role of radiation safety consultants for the institutions previously served by Gamma Corporation. We need to amend our NRC license to accommodate our new staff and procedures.

1. Authorized Users: Elizabeth G. Rodenbeck is now a valuable member of the MPMP team. Her training and experience is documented in the Gamma Corporation NRC License No. 53-16847-01. Please amend our license to include Beth.

2. Leak Testing: The variety of isotopes we need to leak test has grown. For example, we need to leak test Ni-63, Au-195, and Am-241. These sources are used in Nuclear Medicine and the Chemistry Lab of various hospitals as markers or standards. While some are less than 100 μCi in activity, clients still want them leak tested. There may be more in the future. We, therefore, wish to amend our license regarding leak testing with the attached procedures.

Also, Item 6.A needs to be amended to allow for possession incident to the performance of wipe testing of customer's sealed sources. We, therefore, need Item 6.A to allow for the possession of any by-product material with atomic numbers 1 - 83, inclusive, as analytical samples.

These two amendments should satisfy the regulatory needs of MPMP. Thank you for your consideration.

Respectfully,

Scott Dube', M.S.
Radiological Physicist

SBD:lma
Enclosure

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INSTRUMENTATION

Counting Equipment

1. Picker Well Counter/Spectroscaler
   Model 2804/628438-1
   (Property of The Queen's Medical Center, license number 53-16533-02)

2. Nuclear Chicago Laboratory GM Counter
   Model No: 8775
   Range: 0 - 100,000 cpm
   Detects: Alpha, Beta, Gamma

3. Nuclear Chicago Laboratory Scintillation Counter
   Model No: 8775
   Range: 0 - 100,000 cpm
   Detects: Gamma

4. Victoreen Survey Instrument
   Model: 490
   Probe: Model 489-35 and 489-110
   Range: 0 - 800,000 cpm
   Detects: Alpha, Beta, Gamma

Survey Instruments

1. Manufacturer: Victoreen
   Model No: 498
   Probe: Model 493-50 GM Tube
   Range: 0 - 1,000 mR/hr
   Detects: Beta, Gamma

2. Manufacturer: Victoreen
   Model No.: 490
   Probe: 489-50 (Scintillation)
   Range: 0 - 200 mR/hr
   Detects: Gamma

Signal Generator

1. Manufacturer: Heathkit Signal Generator
   Model No.: SG-5218
   Range: 0 - 100 kHz

LEAKTEST PROCEDURE

A. Gamma Emitting Isotopes

1. The source or device shall be wiped with a moistened absorbent swab on all exposed surfaces. The swab shall be placed in a thin wall plastic tube so as to avoid possible contamination of the equipment.

2. The swab shall be assayed using a Well Counter. An open window shall be used with a threshold of less than 100 keV for all isotopes. A background count per minute (CPM) value shall be established prior to the swab assay.

3. The net CPM shall be determined for each swab by subtracting the background CPM from the gross CPM, taking an average of at least three readings.

4. In order to determine the activity in microcuries of the swab, an NBS traceable reference source shall be chosen from our inventory of reference sources. The chosen reference source shall have a photopeak energy less than or equal to the photopeak energy of the sample isotope.

5. The removable activity shall be calculated by the following:

$$\text{Activity} = \left(\frac{\text{net CPM for swab}}{\text{net CPM for reference}} \right) * \text{Activity of reference.}$$

B. Beta Emitting Isotopes

1. The source or device shall be wiped with a moistened absorbent swab on all exposed surfaces. The swab shall be placed in a thin wall plastic tube so as to avoid possible contamination of the equipment.

2. The swab shall be assayed using a thin window GM probe. The probe/survey meter will be calibrated by holding the source in a reproducible geometry with respect to the probe. This will entail a proximity of no more than 1/2 inch. When discriminator settings are used, an open window shall be used with a threshold of less than 100 keV for all isotopes. A background count per minute (CPM) value shall be established prior to the swab assay.

3. The net CPM shall be determined for each swab by subtracting the background CPM from the gross CPM, taking an average of at least three readings.

4. In order to determine the activity in microcuries of the swab, an NBS traceable reference source shall be assayed. This reference source shall be chosen from our inventory of reference sources. The chosen reference source shall have a peak beta energy less than or equal to the peak beta energy of the sample isotope.

5. The removable activity shall be calculated by the following:

$$\text{Activity} = \left(\frac{\text{net CPM for swab}}{\text{net CPM for reference}} \right) * \text{Activity of reference.}$$

C. Conditions

1. If any swab reveals the presence of activity which exceeds the action levels, the owner of the source will be immediately notified by telephone of the results and requirements of 35.14 (b) (5) (iii). The action level is 0.05 microcuries or more of removable contamination for Teletherapy sources and 0.005 microcuries or more of removable contamination of for all other sealed sources. The report shall describe the equipment involved, the test results and the corrective action taken.

2. The storage and security of all radioactive material shall be such that the requirements of 10 CFR 20.207 are satisfied.

3. If the activity of the swab should exceed background by more than three standard deviations, the wipe material and rubber gloves will be considered radioactive waste and disposed of according to Item 18.

4. The leak test results will be reported on the Leak Test Certificate form.

RADIOACTIVE MATERIAL FOR USES NOT LISTED
IN ITEM 6.a

MPMP shall possess sealed sources up to 3 mCi to be used for calibration and reference standards.

MPMP shall also use sealed sources greater than 3 mCi to be used for calibration and reference standards which are licensed and possessed by The Queen's Medical Center (NRC license number 53-16533-02). In this category, MPMP shall use the following Nuclear Associates cesium-137 sealed sources:

MODEL	ACTIVITY	ON
67-801	5.4	11/26/80
67-802	10.1	11/26/80
67-803	15.3	11/26/80
67-804	20.2	11/26/80
6B6G-LC	0.93	11/17/72
6B6G-LC	1.86	11/17/72

Also in our inventory is a Victoreen Model 681 Instrument Calibrator containing a 100 mCi, Cs-137 source.

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