



Radiation Safety Office

July 16, 2012

Dennis Lawyer
U.S. NRC Region I
2100 Renaissance Boulevard
Renaissance Park
King of Prussia, PA 19406

Re: License No. 37-04594-11

Dear Mr. Lawyer;

In response to your request, the following additional information in support of our license renewal application is provided.

Source model numbers:

Amersham (AEA Technology / Isotrak); model number NBC 23
NRD; stock number BX0002

Confirmation of source security:

This is to confirm that the sources will be secure from unauthorized access when at temporary job sites.

Leak test procedures:

See attached procedure.

Contact me if you have any questions or need additional information.

Sincerely,

Kent Lambert, CHP
Radiation Safety Officer

Leak Test Procedures

This leak test procedure is adapted from the model leak test procedure in NUREG 1556 Vol. 7.

Frequency for Conducting Leak Tests of Sealed Sources

Leak tests will be conducted every 6 months.

Procedure for Performing Leak Testing and Analysis

- Identify each electron capture device in which a nickel-63 foil is mounted, by manufacturer, model number, serial number and activity.
- Prepare a separate wipe sample (e.g., fiber tipped swab) for each source.
- Correlate each wipe sample with identifying information for each source.
- Wipe the air inlet and outlet to the ECD. When wiping the inlet do *not* to insert the swab to the point that it contacts the surface of the nickel-63 foil.
- Prepare samples for liquid scintillation counting using standard preparation procedures.
- Count samples using a liquid scintillation counter with known efficiencies. Use efficiency for tritium if the efficiency for nickel-63 is unknown.
- Determine the net count rate:

$$\text{net count rate} = \frac{\text{sample counts} - \text{background counts}}{\text{counting time}}$$

Determine wipe activity:

$$\text{wipe activity (Bq)} = \frac{\text{net count rate (cpm)}}{\text{counter efficiency}} \times \frac{\text{minute}}{60 \text{ s}} \quad \text{or}$$

$$\text{wipe activity } (\mu\text{Ci}) = \frac{\text{net count rate (cpm)}}{\text{counter efficiency}} \times \frac{\text{minute}}{60 \text{ s}} \times \frac{\mu\text{Ci}}{37000 \text{ Bq}}$$

Complete the leak test form. Retain record for at least 3 years.

If the wipe activity is 0.005 μCi (185 Bq, 11,100 dpm) or greater:

- notify the RSO.
- notify the authorized user / contact person to take the unit out of service.

The RSO will make all appropriate notifications to regulatory authorities.