

## UNIVERSITY of PENNSYLVANIA

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### Environmental Health & Radiation Safety

3160 Chestnut Street  
Suite 400  
Philadelphia, PA 19104-6287  
Tel. (215) 898-4453  
Fax: (215) 898-0140

### Facsimile Cover Page

Attention: Kathy Moles

Date: 9-12-03

Organization: NRC

Fax No.: 610-337-5269

From: Rob Forrest

Number of pages including cover: 4

#### Notes:

Please call me if you have any questions.

Rob Forrest

215-898-2109



Environmental Health & Radiation Safety

September 12, 2003

Kathy Modes  
Nuclear Materials Safety Branch  
United States Nuclear regulatory Commission, Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Dear Ms. Modes:

As a follow-up to our conversation on August 14, 2003 and as required by 10 CFR 20.2201, I enclose a report of the missing 15 mCi Ni-63 source contained in a gas chromatograph at the University of Pennsylvania.

If you need further information, please contact me at (215) 898-2109.

Sincerely,

A handwritten signature in black ink, appearing to read "R.D. Forrest".

Robert D. Forrest, CHP  
Associate Director/Radiation Safety Officer

cc: Cameron Koch. PhD.

03-01366 RF-dp

Report of missing gas chromatograph containing a Ni-63 source at the University of Pennsylvania

**Description of the Source:**

15 millicuries of Ni-63 in an electron capture detector within a Hewlett Packard gas chromatograph (gc).

**Circumstances under which loss occurred:**

While performing routine inventory and leak testing on July 15, 2003, a technician for the Office of Environmental Health and Radiation Safety (EHRS) found that a Hewlett Packard gas chromatograph had been moved from its location in room 254 of the Chemistry building.

During May 2003, the room housing the gc was cleaned out by Chemistry Department staff prior to a minor renovation. Any equipment remaining in the room was delivered to the loading dock where it was picked up by a waste hauler. The waste hauler took the equipment to a scrap metal dealer.

**Probable source disposition:**

The gc was most likely disposed of during a lab renovation and taken to a scrap metal dealer.

**Exposures to individuals:**

The activity and isotope, in the form involved, would not have resulted in any radiation dose to employees or members of the general public in any likely scenarios according to NUREG-1717, "Systematic Radiological Assessment of Exemptions for Source and Byproduct Materials." The document specifically addresses the scenario in which a gas chromatograph containing a Ni-63 source is sent to a scrap metal processor, as is assumed the case here. That document finds doses to individuals who handle gas chromatographs only if the sources leak, and in that case, the estimated dose to waste collector, the maximally exposed individual, is  $2 \times 10^{-5}$  mSv. The source in this gas chromatograph had been tested for leakage semi-annually and was never found to be leaking.

**Actions taken to recover the material:**

EHRS went to the laboratories of the members of the Chemistry Department believed most likely to have an interest in using a gas chromatograph. EHRS asked personnel in the laboratories for information they might have about the device and looked for the device in the laboratories. The inspections and interviews resulted in no information on the device

The Chemistry department sent an Email to faculty and staff with a picture of the gas chromatograph asking if anyone had seen the missing device.

EHRS contacted the scrap metal dealer to determine whether it was possible that the equipment from the Chemistry Department was still at its site. A representative of the company said that all scrap is processed within twenty-four hours of receipt. No scrap received in May would still be on site.

EHRS staff and Chemistry Department staff independently searched all storage areas in the building for the device. The gas chromatograph was not located.

**Procedures that have been adopted to prevent reoccurrence:**

EHRS is posting readily visible surfaces of known generally licensed devices with a 3.5 inch by 4.5 inch sticker featuring the conspicuous message, "Warning. Device contains radioactive material. Do not dispose" and a radiation symbol. The label also includes contact information for EHRS.