



Center for Disease Control and Prevention
National Institute for Occupational
Safety and Health
Robert A. Taft Laboratories
4676 Columbia Parkway
Cincinnati, OH 45226-1998

November 22, 2006

USNRC
Materials and Inspection Division
Region III
2443 Warrenville Road,
Suite 210,
Lisle, IL 60532-4352

Dear Sir/Madam:

This correspondence is the formal written response required by 10 CFR 20.2201 as a follow up to the telephone report, filed with the NRC Operations Center on October 27, 2006 reporting three missing tritium source electron capture detectors (ECD's), from the National Institute for Occupational Safety and Health (NIOSH), 4676 Columbia Parkway, Cincinnati, Ohio, possessing NRC License number 34-07167-03. NIOSH is a division of the Centers for Disease Control and Prevention (CDC), headquartered in Atlanta, Georgia.

Description Of Lost Or Missing Sources

The three ECD's are as follows:

1. Valco Industries Model 140 electron capture detector (ECD) serial # 158 in a Baseline 1030A gas chromatograph (GC). The initial activity when the source was manufactured in 1979 was 1000 mCi of tritium. Current activity is approximately 387 mCi of tritium.
2. Valco Industries Model 140 electron capture detector (serial # 124) in a Baseline 1030A GC. The initial activity when manufactured in 1979 was 1000 mCi of tritium. Current activity is approximately 218 mCi of tritium.
3. Scentex electron capture detector in a Scentor Model Gas Chromatograph (serial # 40K191). Initial activity was manufactured in 1988 was 150 mCi of tritium. Current activity is approximately 53 mCi of tritium. The serial number of this detector is not known.

A Description Of The Circumstances Under Which The Loss Was Discovered

The NIOSH Cincinnati Radiation Safety Officer retired from civil service in March 2006. He was retained via contract through September 2006. An interim RSO was appointed with the required level of experience until a permanent RSO could gather the necessary experience and training to be approved. The interim RSO was approved by the NRC in October 2006.

RECEIVED NOV 27 2006

Due to the retirement of the former RSO and the need to provide a training experience for the proposed permanent RSO, the local NIOSH Cincinnati Management Operations Officer (MOO) felt that a comprehensive review of the radiation safety program would serve as an opportunity for the proposed RSO to gain experience. The review was conducted by the CDC Assistant RSO, and both the NIOSH Morgantown, WV RSO and the Safety Officer at NIOSH Morgantown, WV.

The team's in-depth review of the sealed source and radioisotope inventories, and the former RSO's records indicated the ECD's could potentially be missing. Upon further investigation, it was determined these sources were missing, which was then reported to the NRC Operations Center on October 27, 2006.

Actions Taken To Determine The Location Of The Missing Sources

The team reviewed all Radiation Safety Program records. Additionally they did a search of all available NIOSH Cincinnati and CDC surplus property records for 1997 through 1999. The team interviewed current and retired employee's who were known to have used the Gas Chromatograph (GC) instruments containing the missing sources, along with the former RSO. The team also contacted the GC's manufacturers, to see if the GC's along with the ECD's had been returned. The team contacted academic institutions where NIOSH had previously donated similar type equipment. The above comprehensive search did not definitively locate records verifying the disposition of the potential missing sources.

Disposition Or Probable Disposition Of The Radioactive Sources

During the audit the former RSO was interviewed and he stated the ECD's were disposed of properly, but he could not remember the exact details, nor locate the records.

The probable disposition of the sources to the best of our knowledge is they were properly disposed in 1996 or 1997, but no transfer or disposal records exist from that time period. It is believed the Valco ECD Serial No. 124 was disposed of properly as this was indicated on the 1996 inventory by the RSO. It is believed the Valco ECD Serial No 158 was also disposed of properly as both were contained in the same GC in 1996. These sealed sources do not appear on the 1997 inventory and the amount of activity associated with the sources was not on the inventory in 1997. This would be consistent with the disposal of these sources. The Scentex ECD housed in a Scentor GC is not listed on the inventory in 1997 and little history exists regarding the instrument. However, the 1997 inventory shows a reduction in activity from the 1996 inventory. This would be consistent with the disposal of this instrument.

Exposures Of Individuals To Radiation, Circumstances Under Which The Exposures Occurred, And The Possible Total Effective Dose Equivalent To Persons In Unrestricted Areas

The sources were still housed in the GCs, and therefore, the dose rate from the sources would not

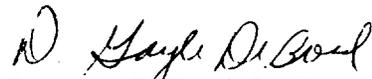
have been above background levels. This has been proven with dose rate measurements taken from similar GCs. We have no reason to believe that any person has been exposed to radioactivity due to these missing sources.

Procedures Or Measures That Have Been, Or Will Be, Adopted To Ensure Against A Recurrence Of The Loss Or Theft Of Licensed Material

The inventory has been verified, current and up-to-date for all radioactive materials unsealed and sealed, at the NIOSH Cincinnati Laboratories. All unwanted or unneeded sealed and unsealed sources have been collected, properly stored, and are awaiting disposal by an authorized contractor. In the future, all sealed sources listed on the inventory will have the authorized user identified for that source and the property number associated with the instrument. This will simplify tracking of the instrument to the source. In addition, a component of the annual mandatory training authorized users are given, will include training focused on tracking of radioactive materials. The supervisors of authorized users will also complete this mandatory training. The Cincinnati RSO will also utilize another CDC RSO or qualified contractor as a third party evaluator of the radiation safety program. The third party evaluation will occur semiannually every two years. The RSO will keep complete records of inventory, disposal, and transfer of radioactive materials within a database and store indefinitely.

Please contact me at 513-533-8212 if you have any further questions or need any additional information.

Sincerely,



D. Gayle DeBord, Ph.D.

Interim RSO

NIOSH-Cincinnati Operations

From: Origin ID: (513)533-8301
David Mersch
NIOSH/OAMS
4676 Columbia Parkway
MS-C2
Cincinnati, OH 45226



CLS 990 298/10/23

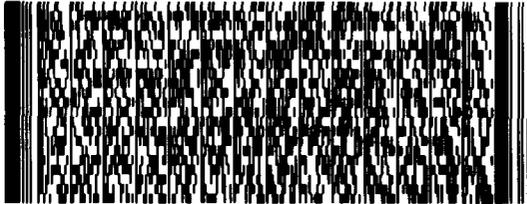
Ship Date: 22NOV06
ActWgt: 1 LB
System#: 5922467/INET2500
Account#: S *****

REF:



Delivery Address Bar Code

SHIP TO: (630)829-9500 **BILL SENDER**
Region III Materials and Inspection
USNRC
2443 Warrenville Road
Suite 210
Lisle, IL 605324352



PRIORITY OVERNIGHT

FRI

TRK# **7901 2230 7626**

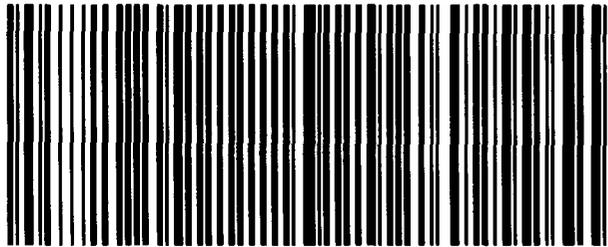
FORM
0201

Deliver By:
24NOV06

ORD A2

60532 -IL-US

NY BDFA



Shipping Label: Your shipment is complete

1. Use the 'Print' feature from your browser to send this page to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.