



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

25 Oct 11

MEMORANDUM FOR NRC Operation Center
NRC, Region IV (Ms. Cook)

FROM: United States Air Force (USAF) Radioisotope Committee Secretariat (RICS)

SUBJECT: Report of Lost or Missing Source, Event Notification Number 47309

1. In accordance with 10 CFR Part 20.2201(b), our office is providing a written report for the loss of a radioactive source authorized for use under USAF Master Materials License, No. 42-23539-01AF, Docket No. 030-28641, for use specifically under USAF Permit No. OH-04682-03/10AFP, Docket No. 030-02732 at Wright Patterson Air Force Base, Ohio.

2. The lost source was reported to our office on 30 Sept 2011 by the permit radiation safety officer. The RICS reported the lost source to both the NRC Operations Center and Region IV the same day, see Attachment 1 and 2. The permittee's written report, dated 21 Oct 11, provides the detailed information, see Attachment 3. Specific information is as follows:

2.1. Source Description: The source was classified as "Special Form" americium-241 (Am-241) with activity of 12.0 millicuries (444.0 megabecquerels). It was determined that the radioactive source was no longer part of the existing anatomical spot marker designed to be used with a Siemens LEM portable nuclear medicine gamma camera.

2.2. Description of Circumstances: The spot marker was received by the permittee in 1989 and used until 1994. The device was stored from 1994 – 2002, during which time it was leak tested IAW 10 CFR Part 20. Between Jul 2002, and Jan 2003, the spot marker was placed in inactive storage as permit inventory documentation listed the source as present but "not in use."

A self inspection and visual inventory was completed 27 Sept 2011 by the permit and assistant installation RSOs. The spot marker was annotated on the inventory as being in a locked cabinet. During the inventory, the marker/wand was surveyed with a zinc sulfide and sodium iodide probes and found to have zero readings (counts). Believing this was an error, the assistant installation RSO returned with different instrumentation and the NRC Sealed Source and Device Registry (SS&DR) for the device. After reviewing the SS&DR, it was apparent that the Am-241 source had been removed from the wand. An immediate inventory of performed by the RSOs. All sources associated with the permit (exempt and non exempt) were accounted for with exception to the Am-241 source.

2.3. Statement of Disposition: The source was last used in a medical application in 1994. Records show that it was listed as being in storage from 1994 to present. The source was stored in room 1P-54 from approximately Jul 2002-Oct 2003 (decommissioned in 2007). From Jan 2004-present, the source was to be stored in room BT-5. It is unknown what happened to the sealed source americium capsule.

2.4. Exposure to Radiation: At this time, there are no known exposures to members of the medical staff or members of the general public due to the loss of this source.

2.5. Actions to Recover Lost Source: The following actions were completed:

- RSOs that worked in the clinic from 1994 to present were contacted/questioned
- Permit source transfer documentation records were reviewed
- RSC Minutes were reviewed

No indication in any records was found to show that the source was transferred.

2.6. Corrective Actions/Procedures: The following corrective actions were implemented:

- A photographic inventory of all exempt and non exempt sources
- Restructuring of records/data base to streamline and generate a user-friendly compilation of records
- Remedial training of all users of material

3. If you have any questions, please contact me at DSN 425-6338 or E-Mail at daniel.shaw@pentagon.af.mil or David Cessor-Culver at DSN 425-6308 or E-Mail at david.cessor-culver.ctr@pentagon.af.mil. Our fax number is DSN 425-1272 and our web page address is https://kx.afms.mil/rad_prot. Our after-duty-hours Incident/Accident Reporting phone number is 301-981-5058 (DSN 858).



DANIEL A. SHAW, Maj, USAF, BSC
Chief, Radiological Health Operations
USAF Radioisotope Committee Secretariat
Air Force Medical Support Agency

3 Attachments:

Notification of Lost Source to NRC Ops Center, 30 Sep 11

Email Correspondence to Region IV, 30 Sep 11

Written Report of Lost Americium-241 Anatomical Marker Source, 21 Oct 11

cc:

HQ AFIA/SGI (Maj Sassi)

88 DTS/SGQXP (Lt Col Nemmers)

30 September 2011

5 pages

FOR: NRC OPS Center

FROM: LtCol David Smith, AFMSA/SG3PB

PHONE: 703-588-6427

FAX: 703-1272

EMAIL: davida.smith@pentagon.af.mil

SUBJECT: Report of Lost or Missing Source, Event Notification Number
47309

RADIOACTIVE MATERIALS INCIDENT REPORT

1. Date/Time Notified: 30 Sep 2011 / 1505
2. Person Making Notification: Lt Col Scott M. Munnings
 - a. Organization, Office Symbol and Installation: 88 mob
 - b. Telephone Nos.: (DSN) (Commercial) 937 25 79455
 - c. TELEFAX Nos.: (DSN) (Commercial) 937-608-6353

A. DESCRIPTION OF INCIDENT/ACCIDENT

1. Date & Time of Occurrence or Discovery: 9/30/2011 11420
2. Organization Possessing Source(s): 88 mob
3. Specific Location(s):
4. What Happened:

During visual check of storage location; metal Am-241 (24400A\7855LW) was missing. Conducted Mol Survey to clarify missing. Called IESO; also destroyed. Source was a metal can in a metal container. Conducted search throughout department. Last Mol test 2 Jul 2008. Item placed in storage; last visual check/confirmation Sep 2009.

B. RADIOACTIVE MATERIALS INVOLVED

1. USAF Master Materials License: 42-23539-01AF Docket: 030-28641
2. Applicable USAF RAM Permit: Docket:
3. Commodity (i.e., compasses, etc):
4. Radioisotope(s) Involved: Am 241 Activity: 17 mCi
5. Sealed Source Model/Serial No.: 24400A\7855LW
6. Commercial Carrier: N/A
7. Radiopharmaceutical Supplier: ?

Rev. 17 Jun 93

C. DESCRIPTION OF CORRECTIVE ACTIONS

1. Actions Taken to Correct or Abate:

2. Additional Actions Planned and Estimated Time to Complete:

Barreling does to see if security was terminal in for disposal: it was scheduled for disposal.

3. Recommendations/Administrative Guidance Given or Follow-up Actions Required:

D. CONTAMINATION INVOLVED

1. Monitoring Results/Radiation Levels (mR/hr, cpm):

NA *NO CONTAM MTRD*

2. Surfaces and Dimensional Area Contaminated:

NA

3. Concentrations Released (Known or Estimated):

NA *lost: 12 mCi - Aug 24/*

4. Instruments and Method Used for Survey/Estimate:

- 242 HAI
- 170m-300

E. PERSONS INVOLVED/EXPOSED *NA*

NAME	GRADE	SSAN	TELEPHONE NO
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1. Military:

2. Civilians:

3. Estimated Levels/Concentrations to which Exposed:

F. BASE PERSONNEL RESPONDING

1. Command Element:

2. BEE/HP:

3. RSO: *HYPERCAL*

4. Medical:

HEMLOCK GARDENS

5. DP:

G. NOTIFICATIONS

- 1. Air Force: *MDS6/CC*
1606/CC
- 2. Federal: *NRC*
- 3. State:
- 4. Local:
- 5. Press Aware/On Scene/Press Releases Made:

6. Reportable to NRC: *YAS* IAW 10 CFR *30.50*

→ 7. Telephone: Ops Center (301/816-5100) *1545 hours* Region IV (817/860-8116) *called Jadin @ 1540*
301 816-5151
10CPA 20.2201
APAC 0.001 uCi = 1E-3 mCi

8. Written:

H. ADDITIONAL/FOLLOW-UP INFORMATION

20.2201.9) >1000 x APAC = 1E-3 mCi x 10³ = 1 mCi > 12 mCi

EWFAST NOTIF # 47309
(HOWIE CROUCH)

Report taken by: NDM

Entered into database:

File: Permit folder:

17-34:

Shaw, Daniel A Maj MIL USAF AFMSA/SG3PB

From: Smith, David A Lt Col MIL USAF AFMSA/SG3PB
Sent: Friday, September 30, 2011 4:00 PM
To: Cook, Jackie
Cc: Shaw, Daniel A Maj MIL USAF AFMSA/SG3PB
Subject: Incident Report
Attachments: Document.pdf
Signed By: SMITH.DAVID.A.1145554280

Importance: High
Sensitivity: Confidential

Jackie,

Written report of incident reported to Ops Center.

LtCol Smith

David A. Smith, LtCol, USAF, BSC, PhD
Chief, Radiation Health
Chief, Radioisotope Committee Secretariat
Health Physics Consultant to the Surgeon General
Air Force Medical Support Agency
Office of the Surgeon General
703-588-6427; DSN 425-6427

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DEPARTMENT OF THE AIR FORCE
88th MEDICAL GROUP
WRIGHT-PATTERSON AIR FORCE BASE OHIO

21 October 2011

MEMORANDUM FOR AFMSA/SG3PB
1500 WILSON BLVD, STE 1600
ARLINGTON VA 22209

FROM: 88 DTS/SGQXP (Radiation Safety)
4881 Sugar Maple Drive
Wright-Patterson AFB 45433-5529

SUBJECT: Written Report of Lost Americium-241 Anatomical Marker Source

1. The following report is submitted as fulfillment of US Nuclear Regulatory Commission reporting requirements under Title 10, Code of Federal Regulations, Part 20, Section 2201, and AFI 40-201, *Managing Radioactive Materials in the USAF*.

1. Description of the licensed material involved, including kind, quantity, and chemical and physical form.

The lost source contains americium-241 (^{241}Am), in quantity of 444.0 megabecquerels (12.0 milliCuries) at the time of receipt by Wright-Patterson Air Force Base OH on 25 January 1989, in the chemical form of an oxide of americium, with physical form classified as Special Form. (Please see Attachments 1 and 2, respectively, for the source shipping and receipt papers, and the shipper's sealed source leak test for the device.)

The source material is part of an anatomical spot marker manufactured by the Amersham Corporation for use with a Siemens LEM Portable nuclear medicine gamma camera. The gamma camera in question was replaced by the facility sometime before 1994. The marker is a Model 24400A, with serial number 7855LV, manufactured under Lot Number HC9494. The americium oxide in this model device is in an encapsulated tube connected via epoxy to the end of a 1/8-inch diameter, 16"-long steel rod. At the other end of the rod, a plastic handle with a patch cord is attached. The patch cord connects to the gamma camera. The source capsule, rod, and handle composed the anatomical marker wand used with the gamma camera. A picture of the wand (without the americium source capsule) is included as Attachment 3.

2. Description of the circumstances under which the loss or theft occurred.

This anatomical marker had been purchased for use with an existing gamma camera in Nuclear Medicine, but it had not been in use within the Wright-Patterson Medical Center (88 MDG) since at least 1994. The source was stored with other sources in the Nuclear Medicine department's Hot Lab (facility room designator: 1P-54). The source was leak tested according to 10 CFR 20 requirements from its receipt by the facility on 29 January 1989 through its final recorded leak test on 2 July 2002.

Sometime between 2 July 2002 and 17 January 2003, the source was placed in inactive storage, probably so additional leak tests did not have to be performed. Documentation of the decision to store it is implied from inventory and leak tests in and around this time which indicate swipes were performed on the source on 2 July 2002, and the inventory of sources for 17 January 2003 shows a that the source was present on inventory with the annotation "Yes/Not in Use". The source remained on the sealed source inventory list through July 2011.

On 12 August 2011, a medical physics staff member was performing a self-inspection of sections of the medical center radioactive materials permit in preparation for the transfer of the current Medical Center Radiation Safety Officer (MCRSO) from the 88 MDG to a US Army posting on 15 August 2011. The medical physics staff member compared the current leak test and inventories with past leak test results and inventory spreadsheets. He asked the current MCRSO to accompany him to the storage locations of all sources to do a visual inventory, to include the ^{241}Am anatomical marker. The medical physics staff member was told by the MCRSO that the ^{241}Am source was in storage in a locked cabinet within Room BT-5 (the facility's designated low-level radioactive waste storage room) and was not in active use, but he did not have the key for the padlock on the storage cabinet. The MCRSO commented that he had not seen the source since at least 2009 when he was shown the anatomical marker and its location by the previous Permit MCRSO. The MCRSO said he did not know where the key for the lock on the source storage drawer was located. The medical physics staff member consulted with the Alternate MCRSO who directed him to consult with the Base Radiation Safety Officer (RSO) for direction on how to proceed with this issue.

The medical physics staff member contacted the 88th Air Base Wing (88 ABW) Alternate RSO to explain the situation involving the source and inventory. The Alt. RSO said that he would accompany the medical center radiation staff in opening the locked drawer with the source. On 27 September 2011, a bolt cutter was obtained from the Logistics section in the medical center and the padlock on the source storage cabinet was removed. The anatomical marker wand was found inside the storage cabinet. At this time, the Alt. RSO and the medical center radiation safety staff members did not realize the americium capsule was missing from the end of the wand. Readings were collected with both alpha particle and sodium iodide survey instruments (ADM-300 kit), but a zero reading was obtained with both probes. The wand was returned to the cabinet and the storage room door was double-locked. The Alt. RSO was concerned with the zero reading and said he would return with additional instrumentation to survey the source. He noted that the end of the steel rod had markings and scratches that indicated a component might have been attached there at one time and had subsequently been removed.

On 30 September 2011, the Base Radiation Safety staff returned and the wand was surveyed again; a zero reading was once again obtained. Upon search of the NRC Sealed Source and Device Registry, the Alt. RSO discovered a diagram of an anatomical marker similar to the one possessed by 88 MDG. This diagram showed a capsule attached to the

end of a rod. The medical center radiation staff immediately began a full search of the storage room BT-5 and all other permitted source storage locations in the facility. All drawers and containers were emptied of their contents and all containers opened and contents verified. A full source inventory was immediately performed by the medical center radiation safety staff. All sources (exempt and non-exempt) were accounted, with the exception of the ^{241}Am source.

While staff members were conducting the inventory, the current MCRSO and the Alt. RSO began a document search within 88 MDG permit documentation and 88 ABW permit records for any transfers of the ^{241}Am source to the Base permit for purposes of storage, recycling, or disposal. No records of transfer or disposition of the ^{241}Am source could be found. After both initial inventory and records reviews were completed, the MCRSO contacted the USAF Radioisotope Committee to report the source as lost, so they in turn could report the loss to the Nuclear Regulatory Commission.

3. Statement of disposition, or probable disposition, of the licensed material involved.

The current location and disposition of this source is unknown.

The americium anatomical marker had been an unused sealed source from at least 1994 until the present. Based on review of permit records, it had been appropriately inventoried and leak tested at intervals directed by 10 CFR 20 until it was stored as an inactive source between 2 July 2002 and 17 January 2003. The source remained in its storage location of Room 1P-54 until after its inventory on 16 October 2003 and before its next inventory on 9 January 2004, at which point its storage location was moved to Room BT-5 where it remained until the report of its loss.

It is unknown what happened to the sealed source americium capsule. All of the MCRSOs who have served at this facility from 1994 through the present were contacted and questioned about the source. None of the previous MCRSOs recall a transfer of this device to 88 ABW Radiation Safety or any disassembly of the marker wand during their tenure as MCRSO for the medical center permit.

The original source storage location, Room 1P-54, was decommissioned in late 2007. This was over three years after the anatomical marker was transferred to Room BT-5 for storage. This is the only sealed source storage location that has been decommissioned during the 1994-2011 time period.

Since americium is a transuranic material and is not accepted by commercial disposal companies, the medical group maintained the source in-house. There were several attempts by 88 MDG and 88 ABW to transfer the source to the 88 ABW radioactive materials permit from 1994 through 2000. This effort was judged to be a non-viable alternative at the time by both the Base RSO and the MCRSO, therefore both agreed to leave the source in storage at the medical center until a better solution was found.

4. Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas.

There are no known exposures to members of the medical center staff or to members of the General Public due to the loss of this source at this time.

5. Actions that have been taken, or will be taken, to recover the material.

Three thorough searches of all source storage locations in the medical center have been conducted by the MCRSO and his staff members. A fourth search of all Nuclear Medicine storage areas was conducted by that department's staff members and the department's Section Chief. The Alt. RSO and MCRSO have made multiple reviews of existing source transfer documentation, current and previous medical center permits, and medical center Radiation Safety Committee meeting minutes to determine if this source was transferred or somehow disposed. The USAF Radioisotope Committee Secretariat (RICS) has also attempted to find any record of such transfer or disposal of this source. No indication in any records for these offices and respective radioactive material permits was found to show the americium source was transferred from 88 MDG and its purview.

Medical center radiation staff will continue to conduct interviews of past MCRSOs and medical center staff that might have information regarding this source. There will be a review of all construction in or around Room BT-5 where the source was stored. We will conduct an investigation as to who might have had access to Room BT-5 during the time the source was stored in this location.

6. Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed material.

The MCRSO is conducting a complete record review of all permit documentation after this matter is addressed to the RICS to attempt to find documentation of transfer or disposition that may have been misfiled or overlooked. This review is in parallel to a complete radiation safety program self-inspection and root-cause analysis of this event and its implications for the integrity of the medical center radiation safety program.

Initial changes and improvements have already been implemented within the medical center radiation safety program.

(1) A photographic inventory of all non-exempt and exempt radioactive sources on the source inventories has been accomplished. This photo-record will be used by current radiation safety staff members and staff members in training to positively identify sources and to ensure no significant physical changes have occurred to the sources over time.

(2) A review of electronic records and hard copy records revealed that the current permit records are difficult to research, audit, and review. Hard copy records are now under audit for completeness, and are being changed to build a more streamlined and user-friendly compilation of records. Electronic records are being re-structured into a format

that follows their function for daily use and for inspection by medical center staff and by outside organizations.

(3) Training for medical center radiation safety staff members is under review and will be changed to ensure that all MCRSO candidates are properly trained in US NRC, USAF, and local requirements. Documentation of such training and subsequent review of same by the 88 MDG Chief of Physics that supports requirements of 10 CFR 20 and 35, as listed in US NRC Form 313A, as well as those given in AFI 40-201, AFI 48-148, and pertinent 88 ABW Instructions will be made part of the radiation safety permit documentation.

Future changes for the program include, but are not limited to the following:

(1) Incorporation of necessary changes to 88 MDG Instruction 40-134, *Medical Use of Radioactive Material*, that are results of the investigation of this event will be overseen by the MCRSO. This instruction details management support for the radiation safety program and the associated radioactive materials permit for the 88 MDG.

(2) Review of the current supervisory structure for all physicists within the medical center will be completed and briefed to the medical center executive management. All physicists within the facility are responsible for management and security of materials and the integrity of the radiation safety program. Current and past supervisory structures split physicists across two squadrons and may have contributed to miscommunication and less-than-optimal oversight for junior physicists.

2. Please do not hesitate to contact me via phone at (937) 257-9458 DSN 787 with questions or concerns or for additional clarification on these matters.



SCOTT A. NEMMERS, Lt Col, USAF, BSC
88th Medical Group Radiation Safety Officer

3 Attachments:

1. Source Shipping and Receiving Papers
2. Source Leak Test at Manufacturer
3. Image of Anatomical Marker Wand

cc:

88 MDG/CC

88 ABW/CEAX

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper **Amersham Corporation**
 2636 S. Clearbrook Drive
 Arlington Hts., IL 60005

Air Waybill Number: 1975 806183
Carrier:

Consignee

Shipper's Reference Number:

PAGE 1 of 1 pages

Two completed and signed copies of this Declaration must be handed to the operator

Warning

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

Transport Details

This shipment is within the limitations prescribed for (delete non-applicable)

Passenger and Cargo Aircraft	Cargo Aircraft only
------------------------------	---------------------

Airport of Departure
 Chicago, O'Hare
 ORD

Airport of Destination

This shipment contains radioactive material intended for use in, or incident to, research, or medical diagnosis or treatment.

Shipment type: (delete non-applicable)

Non-radioactive	Radioactive
----------------------------	-------------

Nature and Quantity of Dangerous Goods

Dangerous Goods Identification

Proper Shipping Name

Radioactive Material, N.O.S.

Class or Division:

7

UN or ID#:

UN2982

Quantity and Type of Material

Radionuclide

Chemical Form

Physical Form

Total Activity

MBq

mCi

Packaging Instructions

Package Number 1

Package Type

Type A

Label Category

Transport Index

Dimensions (Centimeters)

20 x 14 x 16
Amb

65 x 54 x 42
C50

48 x 48 x 41
C36

28 x 17 x 11
A-Box

35 x 36 x 36
Source

17 x 23 x 26
B-Box

Other

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labelled, and are in all respects in the proper condition for transport by air according to the applicable International and National Government Regulations.

This is to certify that the above-named materials are properly classified, described, packaged, marked and labelled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Name/Title of Signatory

S.A. Catabrese/Traffic Supervisor

Place and Date

Chicago, IL, O'Hare

Signature *S.A. Catabrese* Attachment 3
 (see warning above)

RADIONUCLIDE RECEIPT AND DISPOSITION REPORT
DEPARTMENT NUCLEAR MEDICINE

1. PO.#: MKOT___ Syncor___ NEN___ M-P:___ Cal #: Component Part of Siemens LEM Portelli Camera. Date: 25 Jan 89 Time: 1105 Receiving Technician: BKZM
2. PACKAGE CONDITIONS: C.K. OTHER: _____
3. DO PACKING SLIP AND CONTENTS AGREE: Y N: _____ Record difference at #8: _____ Note: If damaged notify RSO or OIC
4. WIPE RESULTS: a. Outer Container: 176 CPM Final Source Container: 133 CPM Source Sheath. Standard: 115 CPM BKG: 94 CPM
- NOTE: If either is over 100 cpm above background notify RSO or OIC
5. SURVEY RESULTS OF PACKING MATERIAL AND CARTON: 0.06 mR/hr BACKGROUND: 0.06 mR/hr.
- NOTE: If greater than two times background notify RSO or OIC
6. DISPOSITION OF PACKAGE: Trash: (Note 1) Syncor: _____ Storage: _____ Other: _____ LABELS REMOVED: Y: N: _____
7. IF NRC, USAF AIC, MANUFACTURER, CARRIER NOTIFIED: DATE: _____ TIME: _____ PERSON(S) NOTIFIED: _____
8. RECORD COMMENTS AND/OR ACTIONS TAKEN: Am 241 sealed source RSO notified of receipt, wipes and addition to sealed source inventory. Dept./RSO Review: _____

RADIONUCLIDE STATUS CHART

RECEIPT		DECAY STORAGE				TRASH DISPOSAL				TRANSFER				
TYPE	ACTIVITY RECEIVED (mCi)	SURVEY READINGS OF PACKAGE WITH RADIONUCLIDES (Note 4)	STORAGE LOCATION (IF NOT HOT LAB)	ACTIVITY STORED (mCi)	DATE STORED	TECH INIT.	DATE	SURFACE READING (mR/hr) (Note 1&4)	BKGD (mR/hr)	TECH INIT.	SURFACE READING (mR/hr) (Note 2&4)	MAX TRANSFER LIMITS (mCi) (NOTE 3)	TRANSFER TO:	TECH INIT.
GA-67 CITRATE		SURVEY READING AT										10		
In-111 DT/OX		SURFACE <u>0</u> mR/hr										2.5		
I-125 Na		Note: If greater than 200 mR/hr notify RSO/OIC										7		
I-123 Na/OIH												5		
I-131 Na		SURVEY READING AT										1		
Tl-201 CL		1 METER: <u>0</u> mR/hr										20		
Xe-127 gas		Note: If greater than 10 mR/hr notify RSO/OIC										100		
Xe-133 gas												3		
P-32 Chr-Phos												60		
Cr-51 Na												9		
Co-57 Vit B12														
<u>Am 241</u>	<u>12 mCi</u>	<u>Motion correction would.</u>												

- NOTE 1: MUST BE AT BACKGROUND LEVEL FOR TRASH DISPOSAL (NRC REG GUIDE 10.8 APPENDIX J)
- NOTE 2: MUST NOT EXCEED 0.5 mR/hr READING AT SURFACE OF SHIPPING CONTAINER (49CFR173.421)
- NOTE 3: WHEN MULTIPLE RADIONUCLIDES ARE TRANSFERRED IN THE SAME CONTAINER, THE LOWEST mCi LIMIT WILL BE UTILIZED (49CFR173.421, 173.423)
- NOTE 4: PERFORM CHECK SOURCE READING OF SURVEY INSTRUMENT PRIOR TO EACH USE

Amersham Corporation
2636 South Clearbrook Drive
Arlington Heights, Illinois 60005-4692
(312) 593-6300



SEALED SOURCE LEAK TEST AND IDENTIFICATION CERTIFICATE

Model Number 24400A Lot Number HC9494
Isotope Am-241 Serial Number 733321
Total Activity 12 millicuries/source
Quantity 1 Leak Test On 20 Oct 88

The above sources were tested for removable radioactive contamination by wiping the surface with a swab moistened with alcohol, depositing the swab in a vial containing a scintillation cocktail solution and counting in a liquid scintillation spectrometer system. The contamination level was found to be less than 0.005 microcuries.

Date 20 Jan 89 Signature M. J. Geising

