

William L. Meengs, MD, FACC, FSCAI
Patrick M. Maloney, MD, FACC
Harold J. Willens, MD, FACC
Duane W. Schuil, MD, PHD, FACC, FSCAI
Peter Levanovich, MD
Gerald A. Gadowski, DO, FACC, FACO
Louis Cannon, MD, FACA, FCCP, FACC, FACP
Andrew H. Teklinski, MD
Larry Gold, CEO

Office of the Administrator
United States Nuclear Regulatory Commission
Region III
2443 Warrenville Rd.
Suite 210
Lyle, IL 60532

November 7, 2006,

Report of Loss of Licensed Material- Event #42910

Missing material: 15.0 mCi Tc99m-sestamibi, unit-dose, in a syringe for injection. The syringe was in a lead pig sealed with shrink-wrap, with the contents labeled on the outside surface of the container and on the syringe.

Circumstances of loss: Fourteen doses had been logged in by bar-code reader from the packing lists of the contents of two ammo-box shipping containers. There were fourteen doses listed between two packing lists, and the two Nuclear Medicine techs involved both believe they counted 7 dose pigs in each box. The doses were sorted by type (Rest/Stress sestamibi) and placed on the dose rack with the rest doses on the left, and stress doses on the right as usual. The first rest dose was placed behind the L-shield for dispensing, so the pattern of doses on the rack was noticeably asymmetrical.

Approximately 90 minutes later, the Nuclear Medicine Tech who had been injecting the rest doses told the RSO that it looked like one of the rest doses was missing from the rack. A count of the unused doses and the empty pigs, and comparison of prescription numbers showed that one dose (#365400) was unaccounted for. An inspection of the hot lab, dosing areas, storage areas, laundry hampers, waste baskets and all areas of the department did not uncover the pig or its contents. A search was made of Northern Michigan Hospital's laundry using a survey meter and no radioactivity was detected in any of the hamper bags that had been collected that morning. The laundry manager assisted in the survey, and was instructed to report to the RSO if any lead pigs or syringes were found in the laundry bags later, and none have been found.

During the time that the dose is believed to have been in the hot lab, the door remained locked and only the 2 Nuclear Medicine Techs on duty are known to have entered the hot

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lab. No other person was seen in the vicinity of the hot lab and there was no sign of forced entry. The door has a combination lock and the only persons with knowledge of the combination are the Nuclear Medicine Techs, the Treadmill Techs, and the drivers from Pharmalogic, Inc., and CardinalHealth radiopharmacies. The door was not found unlocked or open at any time. The CardinalHealth radiopharmacy was notified. The lead pharmacist questioned their staff and all were sure the dose had been shipped.

Disposition of the Material: As of this writing, no trace of the lead pig nor its contents have been found on the premises. The day of the incident was the first day that CardinalHealth had begun supplying doses to Petoskey Cardiology. The administrators of Petoskey Cardiology felt that because of unfamiliarity with the logistics of the shipment, the most likely explanation was that the dose had not been shipped, and the error was not identified at the time the doses were unpacked. Labels are routinely kept from each pig as they are used until the end of the day in case of any discrepancy. No label from the missing dose was found.

If the material has been stolen, no evidence has been found of forced entry, and no unauthorized individuals were seen in the vicinity of the Hot Lab. The door was not found open or unlocked at any time. Employees working in the area were questioned about the incident the morning of the event and had knowledge of the missing material.

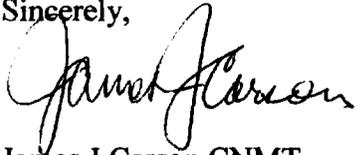
Exposure to individuals: Since the location of the material has not been ascertained, any calculation of possible exposure is based on conjecture. This ranges from zero if the dose did not exist, to near background if it remained in the lead pig, to 0.50 rem TEDE if it had been injected intravenously near the time of its calibration, 0900 on October 16, 2006. Calculations performed by James M. Botti, MS of Medical Physics Consultants, Inc. are enclosed.

Actions taken to recover the material: As stated above, a thorough search of the Hot Lab, the Nuclear Cardiology department, and the Northern Michigan Hospital laundry was conducted. This included floor space, trash containers, storage areas, and laundry hampers. Both visual inspection and survey meters were employed. The administrators of Petoskey Cardiology were informed on the day of the incident, as were the building manager of the Burns Professional Building, in which Petoskey Cardiology is located, and the Security department and the Radiation Safety Officer of Northern Michigan Hospital. No other suspicious activity was identified.

Actions to prevent a recurrence: 1) The combination on the Hot Lab door lock was changed the day of the event. Only the Nuclear Medicine Techs, the Treadmill Techs, and the CardinalHealth radiopharmacy have been told the new combination. 2) The Procedure for Ordering and Receiving Radioactive Material has been modified to include a notation to be made on the packing list by the person checking in the items to indicate that each dose is indeed present in the shipping container before unpacking. Specifically,

the number of doses in the container will be compared to the number of doses listed on the packing list, and their agreement will be noted on the list. If the numbers do not agree, the Tech will immediately notify the RSO, and the Procedure for Theft of Loss of Radioactive Material will be followed.

Sincerely,

A handwritten signature in black ink, appearing to read "James J. Carson". The signature is written in a cursive style with a large initial "J".

James J Carson CNMT
Radiation Safety Officer
Petoskey Cardiology, P.C.



October 25, 2006

Petsokay Cardiology, P.C.
560 West Mitchell
Suite 400
Petsokay, MI 49770

ATTN.: James Carson, CNMT
Radiation Safety Officer

Dear Mr. Carson

This report is to calculate the possible dose to a member of the public from your missing byproduct material as required by 10CFR20.2201(b)(iv). Please include these calculations with your written report to the NRC.

Missing Byproduct Material: 15 mCi Tc99m Sestamibi: Missing source was last seen placed in a Pb pig. The typical surface reading for a source of this activity is ~0.03 mR/hr. The highest possible exposure to a member of the public would be from the intravenous injection of the radio-pharmaceutical. Therefore, I have calculated the possible dose to a member from the public using this method.

Possible Dose Calculations:

Radionuclide:	Tc-99m	
Pharmaceutical:	Sestamibi	
Activity:	15 mCi	
Absorbed dose from ICRP 80:		
Gallbladder Dose Equivalent:		3.9×10^{-2} mGy/MBq
Highest Dose Equivalent from 15.0 mCi:		2.16 rem
Effective Dose Equivalent from ICRP 80:		9.0×10^{-3} mSv/MBq
Effective Dose Equivalent from 15.0 mCi:		0.50 rem

2309 Shelby Avenue
Ann Arbor, MI 48103
(734) 662-9224 Fax
(734) 662-3197

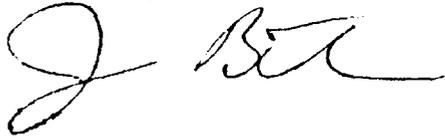
70 E. 91st Street, Suite 106
Indianapolis, IN 46240
(317) 581-1931 Fax
(317) 581-1911

1780 E. Logan Avenue
Salt Lake City, UT 84108
(801) 467-8774 Office & Fax

N7375 Crystal Ridge Drive
Beaver Dam, WI 53916
(920) 885-9872 Fax
(920) 885-9870

If you have any questions concerning this report please contact me at (734) 662-3197.

Respectfully Yours,



James M. Botti, MS
Board Certified ABR, ABMP
Radiological Physicist

2309 Shelby Avenue
Ann Arbor, MI 48103
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(920) 885-9872 Fax
(920) 885-9870

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PETOSKEY
CARDIOLOGY  **Cardiac and Vascular Cen**

560 W. Mitchell, Suite 400
Petoskey, MI 49770



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Office of the Administrator
United States Nuclear Regulatory Commission
Region III
2443 Warrenville Rd., Suite 210
Lyle, IL 60532

60532+4352-60 C021

