



*Specialized Medicine with a Human Touch*

December 2, 2010

Janice E. Nguyen, Health Physicist  
United States Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

Dear Ms. Nguyen:

The purpose of this letter is to provide you with the details of the corrective action plan to address the deficiencies noted during your survey of October 28, 2010.

No documentation of in-service education provided for security, environmental services or maintenance departments.

Review of our records on file indicate the last in-service for maintenance was performed on May 17, 2006 not July of 2007 as previously discussed. A copy of the records is enclosed for your review. There are no recent written records available for review for the environmental services department. Additionally, hospital security is provided by a contracted service. Their records are maintained at a site other than the hospital and we have not been given access to those records. However, the site supervisors have verified the security staff participates in an annual review of all policies including the one which details the role of a security officer in the deliverance of radioactive material to the Hot Lab. I have included a copy of the policy used during the annual review with the security staff for your files.

Robert Stineman, Lead Nuclear Medicine Technologist, has scheduled in-service education programs for the departments which are deficient. Mr. Stineman will conduct the in-services in conjunction with the supervisors in those areas. The in-services will be completed by 12/29/2010. Documentation will be maintained in the Nuclear Medicine Department per departmental policy. Effective immediately, the Lead Technologist of Nuclear Medicine will be responsible for conducting and maintaining documentation for radiation safety in-services on an annual basis. I have included copies of the PowerPoint presentation to be used during the in-service presentations for your review as well as the policy reviewed annually by the security staff.

Please contact me if you have any questions regarding the action plan or other concerns regarding your inspection of our Nuclear Medicine Department.

Sincerely,

Maria C. Phillips  
Administrative Director Radiology, Non-Invasive  
Cardiology and Laboratory

05. 8472 PLANT MAINTENANCE

Subject: Radiation Safety

DATE: May 17, 2006

Employee Name

Employee Signature

Keith E. Davies

Keith Davies

John J. Dobrzynski

John J. Dobrzynski

Jeffrey A. Duffy

Jeffrey A. Duffy

Lawrence E. Durham

Lawrence E. Durham

Michael Ferrier

Mike Ferrier

James J. Geiger

Jim Geiger

William J. Haggerty

William J. Haggerty

Charles M. Jiminez

Charles M. Jiminez

Theresa Ann Kavanagh

Theresa Ann Kavanagh

Arthur Lepovsky

Arthur Lepovsky

William P. McLaughlin

William P. McLaughlin

Richard L. Olivere

Richard L. Olivere

Michael Riley

Michael Riley

Lewis A. Simone

Lewis A. Simone

Janice M. Sloniewski

Janice M. Sloniewski

Janice M. Sloniewski

RADIATION SAFETY SIGNAGE SHEET FOR VENDORS

Medical Bundle ST B Caulkers 5/17/06  
Room 6 Disinfectant ST B 5/17/06

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Nuclear Medicine Department



**St. Francis Hospital**

*Specialized Medicine with a Human Touch*

Section: RADIATION SAFETY

Subject: TRAINING FOR PLANT  
OPERATIONS PERSONNEL

## **PURPOSE**

To assure that all Plant Operations staff who may come in contact with radioactive materials, or work around areas where these materials are stored are properly instructed in how to safely carry out their duties.

In order to accomplish this the following training program has been established. All Housekeeping Supervisors will be trained in this program by the Radiation Safety Officer, and/or the Nuclear Medicine Supervisor. This training will be documented and reported to the Radiation Safety Committee. In turn the Plant Operations supervisors will instruct their staff in the procedures listed in the training program. They will document who received the training, and when. These records will be forwarded to the Nuclear Medicine Supervisor, and will be reported to the Radiation Safety Committee.

## **TRAINING PROGRAM**

### **BIOLOGICAL EFFECTS OF IONIZING RADIATION**

Radioactive materials emit energy in the form of ionizing radiation. This radiation when handled properly is very beneficial. In the hospital it is used for diagnosing and treating many different kinds of diseases.

However emission from radioactive materials can have possible harmful effects, if not handled properly. These harmful effects can occur to the cells in the body, and result in damage to the cells. While the types and amounts of radioactive materials used in the Hospital are not great enough to cause serious harm it is important to always take precautions to protect your self from any unnecessary exposure to any radioactive materials.

## **HOW TO PROTECT YOURSELF AND OTHERS**

Radioactive materials used in the hospital are odorless, colorless liquids. You can not see, taste, or smell them. They can only be detected by special equipment. Therefore it is important to know how to carry out you duties in an area where these materials may be present.

Any area in which radioactive materials are used or stored is identified by the international radiation warning sign, and the words Caution Radioactive Materials. A sample of this sign appears below.

**CAUTION**



**RADIOACTIVE  
MATERIALS**

**RADIOACTIVE MATERIALS  
WARNING SIGN**

This symbol will also appear on any container that has radioactive materials, as well as on any waste container that may have contaminated waste in it. Do not touch any

container that has this symbol, or remove any trash from any trash container that has this symbol.

Occasionally patients in the hospital may be treated with higher than normal amounts of radioactive materials. The above sign will be posted on the door to the patients room. Do not enter this room for any reason, unless instructed to do so by personnel from the Nuclear Medicine Department.

## **PLANT OPERATIONS RESPONSIBILITIES IN NUCLEAR MEDICINE**

All radioactive materials are kept, and prepared in a special room in the Nuclear Medicine Department, called the Hot Lab. This room is identified by a radioactive materials warning sign on the door, and is kept locked, except when Nuclear Medicine personnel are working in it.

Since access to the 4<sup>th</sup> Clayton mechanical room is through the Hot Lab it is important that you follow the following regulations when entering the Hot Lab:

1. The Hot Lab door must remain closed and secured at all times.
2. The door to the Mechanical Room in the Hot Lab must be closed and secured at all times.
3. No unauthorized personnel are to enter the Hot Lab, unless instructed to do so by Nuclear Medicine personnel.
4. Do not touch any items on the counter tops in the Hot lab. Do not touch any items located in the fume hood. All radioactive materials containers are labeled with the international radiation warning sign.
5. If you enter the Hot Lab and discover any type of spill, or liquid on the floor do not touch it. Leave the room immediately and follow the Emergency Procedures instructions that follow.

## **EMERGENCY PROCEDURES**

Since radioactive materials have no color, or smell there is no way of detecting them yourselves. If you see anything unusual in any area marked with a radioactive warning sign (such as what appears to be water on the floor around a container) do not touch it. Leave the area and contact the Nuclear Medicine Department immediately. If this occurs after hours contact security, who will in turn contact the on call Nuclear Medicine Technologist.

Until proper personnel arrive do not reenter the area and do not allow people from entering the area as well.

## **FOR MORE INFORMATION**

If you desire more information, or have any questions about information in this program please do not hesitate to contact the Nuclear Medicine Department at Extension 4365.

# Radiation Safety Training

Environmental Services

## What is Radiation?

- Radiation is the energy released from the Nucleus of an atom as it decays.
- Radiation is tasteless, odorless and colorless. It can only be detected by specially designed survey meters
- Three types of radioactive emissions
  1. Alpha Particles
  2. Beta Particles
  3. Gamma Rays

Radiation is also produced by X-Ray and CT machines. These X-Rays only occur when the X-Ray or CT unit is operating. This radiation is referred to as X-Rays and is similar to Gamma Rays

## NATURALLY OCCURRING RADIATION

- Some sources of radiation are naturally occurring. We are exposed to low levels of radiation every day
- One of the main sources of natural radiation exposure is cosmic rays from the sun.
- Exposure levels from naturally occurring sources are relatively harmless
- The Federal government has set maximum levels of radiation exposure that a person should receive. The levels vary based on whether you work around additional sources of radiation.
- Personnel who routinely work with sources of radiation are required to wear monitoring badges to assure that they are not over exposed to these sources of radiation

## SOURCES OF MAN MADE RADIATION

- There are two sources of man made radiation within the hospital:
  1. X-Ray Department (Radiology)

Radiation in the form of X-Rays is produced only when the X-Ray (or CT) unit is making an exposure.
  2. Nuclear Medicine Department

Radiation is emitted constantly from the radiopharmaceuticals that are stored in the Department

These materials are stored in the Hot Lab when not in use

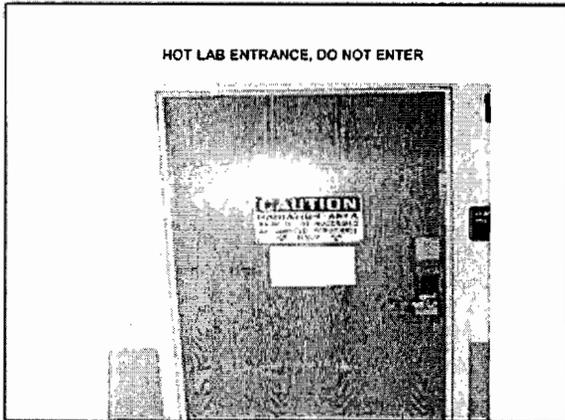
## HOUSEKEEPING IN NUCLEAR MEDICINE

- Routine housekeeping duties may be carried out in the imaging rooms, and office as required.
- The Hot Lab may only be entered to be cleaned when the OK TO CLEAN sign is displayed on the Hot Lab Door.
- Hot Lab cleaning duties are limited to emptying the trash, cleaning the sink, and cleaning the floor.
- All radioactive materials are put away at the end of the day. However do not touch anything on the counters in the Hot Lab. Hot Lab door is not to be left open at any time.
- If you find anything out of the ordinary in any room in Nuclear Medicine (something spilled on any surface, opened vials, etc) DO NOT TOUCH ANYTHING. Exit and secure the room and have Communications page the Nuclear Medicine Technologist on call.

EXAMPLE OF GENERAL RADIATION WARNING SIGN.



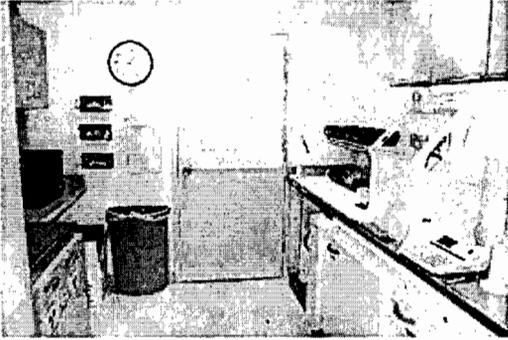
HOT LAB ENTRANCE, DO NOT ENTER



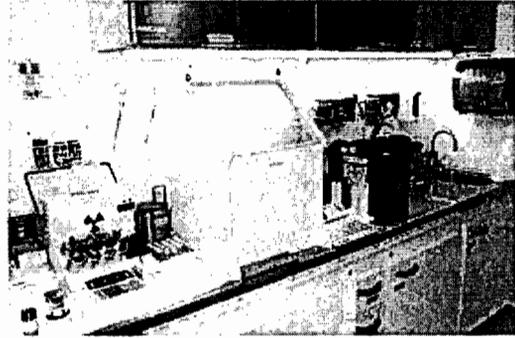
HOT LAB ENTRANCE, OK TO ENTER AND CLEAN AREA



INTERIOR OF HOT LAB



HOT LAB WORK COUNTER, DO NOT TOUCH ANYTHING ON COUNTER  
YOU MAY CLEAN SINK IF NEEDED



# Radiation Safety Training

## Plant Operations

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- Personnel who routinely work with sources of radiation are required to wear monitoring badges to assure that they are not over exposed to these sources of radiation

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  2. **Nuclear Medicine Department**

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These materials are stored in the Hot Lab when not in use

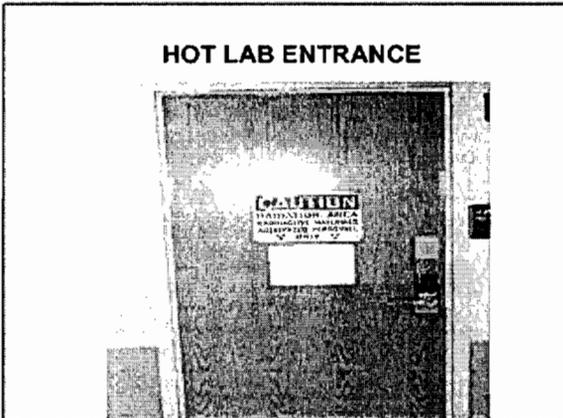
## PLANT OPERATIONS IN NUCLEAR MEDICINE

- Entrance to the mechanical room is through the hot lab. All radioactive materials are kept in shielded work areas. However do not touch anything on the counters in the Hot Lab.
- Hot Lab door is not to be left open at any time
- All outside contractors who need to enter the mechanical room must be escorted through the hot lab by either Plant Operations or Nuclear Medicine Personnel.

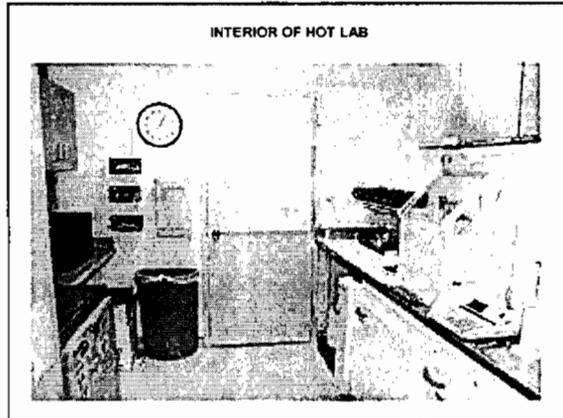
EXAMPLE OF GENERAL RADIATION WARNING SIGN.

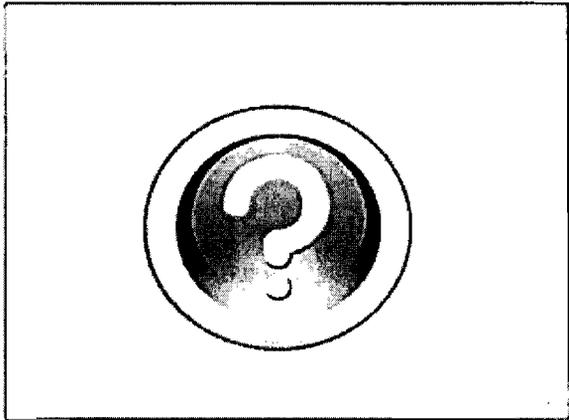
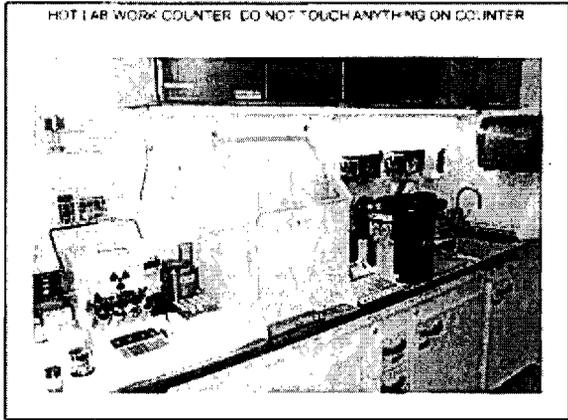


HOT LAB ENTRANCE



INTERIOR OF HOT LAB





# ROLE OF SECURITY PERSONNEL IN RECEIVING RADIOACTIVE MATERIAL SHIPMENTS POLICY

## DURING NORMAL WORKING HOURS (0630 – 1630)

1. Materials received from radiopharmacies during normal business hours are brought directly to the Nuclear Medicine department by the courier employed by the radiopharmacy. These are received by one of the Nuclear Medicine Technologists on duty.

2. For materials received from other suppliers through the loading dock the following occurs:

A. Upon receipt at the loading dock, the shipment is to be inspected by receiving personnel for any damage. If there is any indication of damage, take action as described in INDICATION OF DAMAGE

B. Radioactive materials should be delivered directly to the Nuclear Medicine Department by the Receiving area personnel. At no time are any packages containing radioactive materials be left in a non-secure location.

## AFTER HOURS, WEEKENDS AND HOLIDAYS

1. Materials received from a radiopharmacy will be delivered by the courier employed by the radiopharmacy. **During off hours he/she will enter through the emergency room. following hospital policy a security guard will be notified to escort the courier to the Nuclear Medicine Department, where the shipment will be placed in the Hot Lab.**

2. In the case of materials from other suppliers the following procedure will be followed:

A. The shipment of radioactive material will be brought in through the Emergency Room entrance. **The courier shall be met by the security officer on duty .**

B. **Upon receipt, the security officer will note any obvious damage to the shipment. If there is indication of damage the security officer should take the action described in INDICATION OF DAMAGE**

C. **If no damage is apparent the shipment is then to be taken to the Nuclear Medicine Department by the courier and security and placed in the Hot Lab.**

## INDICATION OF DAMAGE

Indications of possible damage to the shipment include:

- (a) Crushed or punctured container

(b) wet or leaking container

(e) Unsealed container.

**If there is indication of damage the receiving personnel will:**

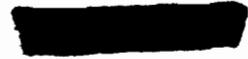
(a) Ask the shipping agent to remain

(b) Not handle the package

(c) Block off area around the package to minimize contact within  
6 feet of package

(d) Call, in the following order:

Nuclear Medicine Supervisor: Robert G. Stineman, CNMT, RT(NR): 421-4361



Radiation Safety Officer: Dr. Fred Wang: 421-4308

Alternate: Nuclear Medicine Technologist on Call: Extension 4131