



# ELIZABETH GENERAL MEDICAL CENTER

925 EAST JERSEY STREET / ELIZABETH, NEW JERSEY 07201 • (201) 289-8600

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MAY 29, 1985

MS 18  
P8

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I  
JOHN E. GLENN, PH.D., CHIEF  
NUCLEAR MATERIALS SAFETY SECTION B  
DIVISION OF RADIATION SAFETY AND SAFEGUARDS  
631 PARK AVENUE  
KING OF PRUSSIA, PA 19406

DEAR DR. GLENN:

RE: LICENSE NO. 29-01600-02  
DOCKET NO. 030-02437  
CONTROL NO. 18519

IN REFERENCE TO YOUR LETTER RECEIVED MARCH 22, 1985, THE  
FOLLOWING INFORMATION IS BEING SUBMITTED TO AUGMENT OUR  
APPLICATION FOR RENEWAL OF LICENSE NO. 29-01600-02:

ITEM #1:

WE HAVE EXPANDED THE MEMBERSHIP OF THE RADIATION SAFETY  
COMMITTEE AS RECOMMENDED IN YOUR LETTER OF MARCH 22, 1985, TO  
INCLUDE A REPRESENTATIVE OF THE HOSPITAL'S NURSING STAFF.  
NAMES AND QUALIFICATIONS OF ALL COMMITTEE MEMBERS HAVE BEEN  
DOCUMENTED IN THE MINUTES AND ARE AVAILABLE FOR INSPECTION.

ITEM #2

OUR STEP-BY-STEP PROCEDURES FOR CONDUCTING THE DOSE  
CALIBRATOR LINEARITY TESTS IS ENCLOSED FOR YOUR REVIEW  
(ATTACHMENT #1).

ITEM #3

A DETAILED DRAWING OF OUR FACILITY WITH SHIELDING LAYOUT IS  
ENCLOSED (ATTACHMENT #2) AS REQUESTED.

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REG1 LIC30  
29-01600-02 PDR

18519  
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ML10 JUN 03 1985

JOHN E. GLENN, PH.D.  
MAY 29, 1985  
PAGE TWO

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ITEM #4

ALL ANCILLARY PERSONNEL AS WELL AS LICENSED RADIATION WORKERS WILL BE MADE AWARE OF THE HAZARDS AND THE APPROPRIATE PRE-CAUTIONS TO BE TAKEN IN THE NUCLEAR MEDICINE DEPARTMENT. AN OUTLINE (ATTACHMENT #3) TO BE FOLLOWED BY OUR RADIATION SAFETY OFFICER AND OUR PHYSICIST CONSULTANT, BIO-MED ASSOCIATES, IS ENCLOSED FOR YOUR REVIEW.

ITEM #5

PER YOUR RECOMMENDATIONS, OUR POLICY AND PROCEDURES PERTAINING TO THE ACCEPTING OF PACKAGES CONTAINING RADIOACTIVE MATERIALS HAS BEEN CHANGED TO REFLECT YOUR REQUIREMENT THAT ALL RADIOACTIVE SHIPMENTS, BOTH DAMAGED AND UNDAMAGED, WILL BE ACCEPTED UPON DELIVERY (ATTACHMENT #4A).

ITEM #6

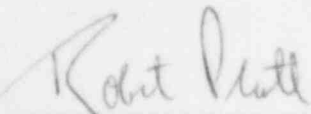
CONCERNING OUR PACKAGE OPENING PROCEDURES, WE DO CONFIRM THAT THE EXTERNAL SURFACE OF THE FINAL SOURCE CONTAINER WILL BE WIPED; THE WIPE WILL BE ASSAYED IN LOW BACKGROUND AREA WITH A THIN-END-WINDOW G-M SURVEY METER OR EQUIVALENT AND THE AMOUNT OF REMOVAL ACTIVITY WILL BE REPORTED (REFER TO ATTACHMENT #4B).

ITEM #7

THE PROHIBITION OF STORAGE OF FOOD, DRINK OR PERSONAL EFFECTS IS CONFIRMED (ATTACHMENT #5) AND INCLUDED IN OUR LABORATORY RULES AND REGULATIONS.

PLEASE FEEL FREE TO CONTACT ME IF YOU REQUIRE ANY ADDITIONAL INFORMATION OR CLARIFICATION OF SUBMITTED MATERIAL.

SINCERELY,



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ROBERT PLATT  
VICE PRESIDENT

RP/MLJ  
ATTACHMENTS

CC: LORRAINE GREINER, R.T.  
BIO-MED ASSOCIATES, INC.



# ELIZABETH GENERAL MEDICAL CENTER

ATTACHMENT #1

925 EAST JERSEY STREET / ELIZABETH, NEW JERSEY 07201 • (201) 289-8600

DEPARTMENT OF RADIOLOGY • (201) 558-8054

SUBJECT: DOSE CALIBRATOR LINEARITY TEST

DATE: MAY 4, 1984

POLICY NO. 26 - N.M.

## POLICY

LINEARITY TESTS SHOULD BE PERFORMED QUARTERLY ON THE DOSE CALIBRATOR IN ORDER TO INSURE ACCURATE CALIBRATION OF RADIO-PHARMACEUTICALS.

### QUARTERLY LINEARITY TEST PROCEDURE FOR DOSE CALIBRATOR

1. A SAMPLE OF APPROXIMATELY 100 MILLICURIES OF TC <sup>99m</sup> SHALL BE REMOVED FROM THE FIRST ELUTION OF A NEW TC <sup>99m</sup> GENERATOR.
2. THIS SAMPLE SHALL BE CALIBRATED IN THE DOSE CALIBRATOR. THE SAMPLE SHALL BE REMOVED FROM THE DOSE CALIBRATOR. A BACKGROUND READING SHALL THEN BE TAKEN.
3. THE SAMPLE READING AND BACKGROUND READING SHALL BE REPEATED TWICE MORE ON THE DAY THAT THE ORIGINAL SAMPLE WAS MADE. EACH OF THE THREE READINGS SHALL BE MADE AT LEAST THREE TO FOUR HOURS APART.
4. THOSE READINGS SHALL BE REPEATED ON EACH OF THE TWO DAYS SUBSEQUENT TO THE DAY OF THE ORIGINAL SAMPLE CALIBRATION. HOWEVER, ON THE THIRD DAY, ONLY TWO READINGS MAY BE MADE.
5. THE ABOVE CALIBRATION AND BACKGROUND READINGS SHALL BE PRESENTED TO THE RADIATION PHYSICISTS WHO WILL VERIFY THAT THE DOSE CALIBRATOR IS OPERATING IN A LINEAR FASHION AND THAT ALL RESULTS ARE WITHIN AN ACCEPTANCE LEVEL OF  $\pm 5\%$ .
6. THIS LINEARITY TEST SHALL BE PERFORMED QUARTERLY.

  
LORRAINE GREINER, R.T.  
ADMINISTRATOR  
RADIOLOGIC SERVICES

REFER TO THE ATTACHED FACILITY DIAGRAM

3A. TC <sup>99</sup>M GENERATORS ARE DELIVERED ON A WEEKLY BASIS AND STORED IN THE PASS BOX (SEE "A" IN ATTACHED DIAGRAM) UNTIL THE BEGINNING OF THE FIRST WORK DAY OF THE WEEK. AT THE BEGINNING OF THE FIRST WORK DAY OF THE WEEK, THE GENERATOR IS PLACED IN AN ENCLOSED 1/2 INCH THICK LEAD SHIELD (SEE "B" IN ATTACHED DIAGRAM). THE GENERATOR IS KEPT IN THIS SHIELD ALL WEEK WHILE IN USE AND IS RETURNED TO THE LOCK BOX AT THE END OF THE WORK WEEK TO BE PICKED UP BY THE MANUFACTURER. ADEQUATE STEPS HAVE BEEN TAKEN TO ASSURE THAT RADIATION LEVELS DO NOT EXCEED LIMITS IN UNRESTRICTED AREAS AS SPECIFIED IN 10 CFR PART 20.105. SURVEYS HAVE BEEN PERFORMED BY THE RADIATION PHYSICIST TO ASSURE SAFETY REQUIREMENTS.

3B. ALL UNREFRIGERATED RADIOPHARMACEUTICALS ARE STORED INSIDE A RECTANGULAR AREA COMPLETELY SURROUNDED BY TWO INCH THICK LEAD BRICKS UNDER A FUME HOOD AS INDICATED ON THE ENCLOSED FACILITY DIAGRAM. ALL REFRIGERATED RADIOPHARMACEUTICALS ARE STORED IN A SPECIALLY LEAD LINED REFRIGERATOR IN THE HOT LAB (SEE "C" IN ATTACHED DIAGRAM).

3C. RADIOACTIVE WASTE IS STORED TEMPORARILY IN A FORT LINED WITH 1/16 INCH LEAD SHEETS IN THE HOT LAB (SEE "D" IN ATTACHED DIAGRAM). WHEN THE FORT IS FILLED, THE RADIOACTIVE WASTE IS REMOVED TO A REMOTELY LOCATED, SECURED STORAGE FACILITY IN THE BACK OF THE HOSPITAL. THIS AREA IS SURVEYED WEEKLY BY THE NUCLEAR MEDICINE STAFF AND THE READINGS ARE DOCUMENTED. AT APPROPRIATE TIMES, A WASTE DISPOSAL SERVICE COMPANY (TELEDYNE ISOTOPES) PICKS UP THE RADIOACTIVE WASTE FROM THE STORAGE FACILITY IN THE BACK OF THE HOSPITAL.

AS STATED ABOVE, GENERATORS ARE DELIVERED AND PICKED UP ON A WEEKLY BASIS BY THE MANUFACTURER.

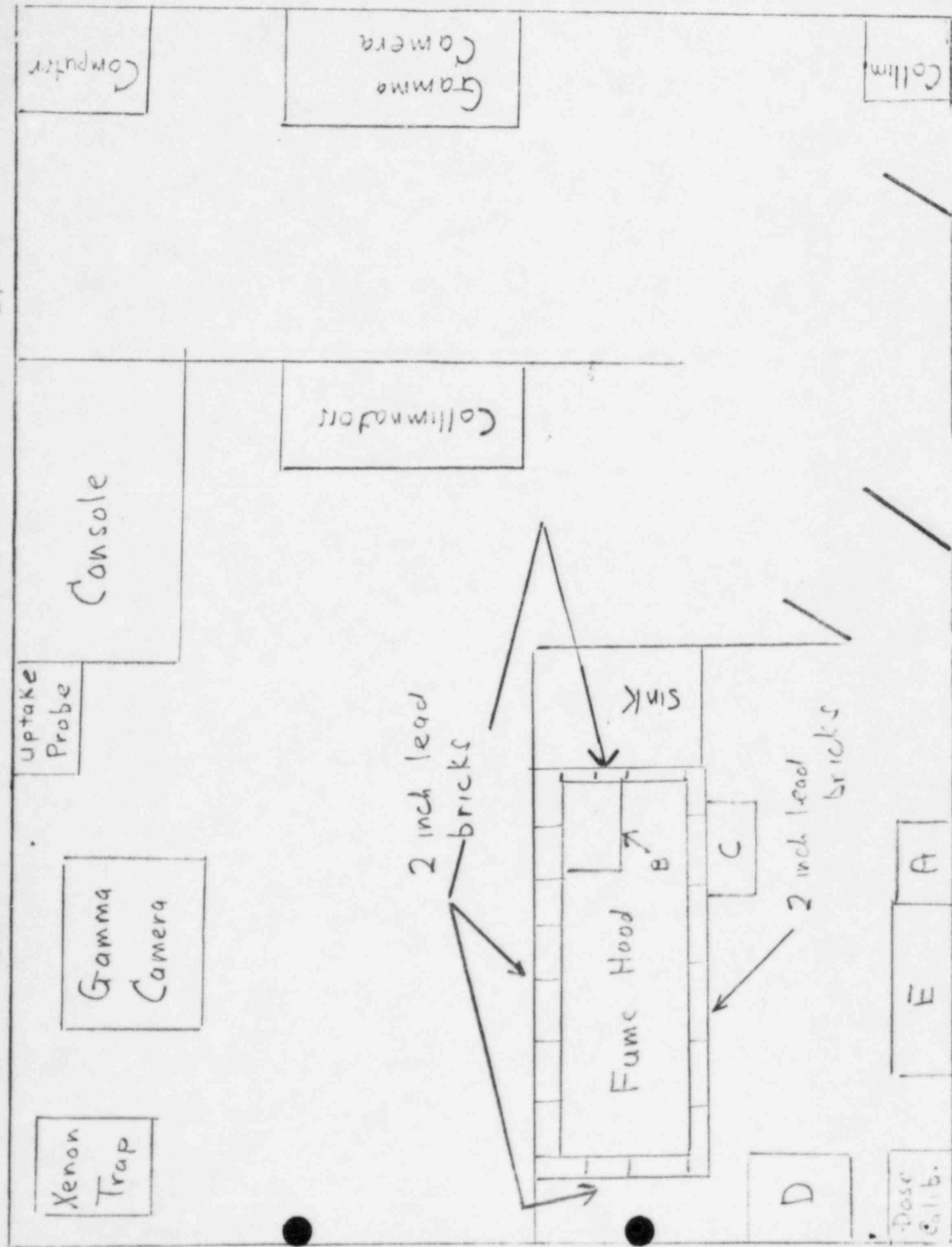
3D. PREPARATION OF GROUP III KIT RADIOPHARMACEUTICALS IS DONE BEHIND A LEAD GLASS "L" BLOCK (SEE "E" IN ATTACHED DIAGRAM). ALL MATERIAL IS HANDLED WITH REMOTE HANDLING EQUIPMENT WHEN APPROPRIATE AND IS TRANSPORTED FOR DISPENSING IN LEAD SHIELDED CARRYING CASES. SYRINGE SHIELDS ARE ALWAYS USED.

3E. AS INDICATED IN THE ENCLOSED FACILITY DIAGRAM, THE AREAS SURROUNDING THE HOT LAB (ASIDE FROM THE NUCLEAR MEDICINE LAB INTERIOR) ARE STORAGE AREAS, A CORRIDOR AND AN AIR SHAFT. ADEQUATE STEPS HAVE BEEN TAKEN TO ASSURE THAT RADIATION LEVELS DO NOT EXCEED LIMITS IN UNRESTRICTED AREAS AS SPECIFIED IN 10 CFR PART 20.105. SURVEYS HAVE BEEN PERFORMED BY THE RADIATION PHYSICIST TO ASSURE SAFETY REQUIREMENTS.

air shaft

air shaft

housekeeping closet



Corridor

Corridor

## PERSONNEL TRAINING PROGRAM

AS OF MAY 23, 1985

## ELIZABETH GENERAL HOSPITAL

IN-SERVICE SUBJECTS COVERED IN TRAINING PROGRAM ARE AS FOLLOWS:

1. AREAS OF RADIONUCLIDE STORAGE
2. POTENTIAL HAZARDS OF RADIONUCLIDES
3. RADIOLOGICAL SAFETY PROCEDURES
4. NRC REGULATIONS
5. LICENSE COMMITMENTS
6. 10CFR 19 AND RIGHT TO KNOW UNSAF CONDITIONS AND REQUEST AN INSPECTION.
7. RESPONDING TO EMERGENCIES SAFELY.
8. RIGHT TO KNOW RADIATION EXPOSURE AND BIOASSAY RESULTS.
9. MATHEMATICS OF DECAY, UNITS, ETCs.
10. RADIOPHARMACEUTICALS- MECHANISM AND PROCEDURES.
11. INSTRUMENTATION OPERATION
12. RADIATION BIOLOGY
13. PHYSICAL PROPERTIES OF RADIATION AND RADIOACTIVITY
14. QUALITY CONTROL (ASSURANCE)
15. DOSE CALCULATION AND ASSAY
16. DOSIMETRY
17. EXPOSURES IN PERSPECTIVE
18. EXPOSURES DURING PREGNANCY
19. ALARA (PHILOSOPHY)

PERSONNEL CATEGORIES	TYPE	SUBJECTS COVERED	DURATION
A. PHYSICIANS	D	4, 5, 6, 19	3 HR/YR
B. TECHNOLOGIST	L, D, Q	1-19	12HR/YR
C. ORDERLYS	D	1, 2, 3, 6, 7, 8, 17, 19	1HR/YR
D. CLERICAL	D	1, 2, 3, 6, 7, 8, 17, 18,	"
E. NURSING	L	1, 2, 3, 6, 7, 8, 17, 18	"
F. HOUSEKEEPING	I, D	1, 2, 3, 6, 7, 17	1/2HR/YR
G. SECURITY	I, D	1, 2, 3, 6, 7, 17	1/2HR/YR

TYPE: FORMAL LECTURE = L QUIZ = Q DISCUSSION = D  
INSTRUCTION = I

PHYSICIANS AND TECHNOLOGIST ARE PROVIDED WITH OUTSIDE MEETINGS FOR CONTINUING EDUCATION. ALL PERSONNEL WILL BE PROPERLY INSTRUCTED BEFORE ASSUMING THEIR DUTIES IN THE VICINITY OF RADIONUCLIDES. ANNUAL REFRESHER TRAINING AS STATED ABOVE WILL BE PROVIDED, OR AS A SIGNIFICANT CHANGE IN DUTIES OCCURS, OR IF THE TERMS OF THE LICENSE CHANGE.

INSTRUCTIONS FOR NON-OCCUPATIONAL PERSONNEL FREQUENTING  
THE NUCLEAR MEDICINE DEPARTMENT.

1. FOLLOW TECHNICIANS INSTRUCTIONS REGARDING BEST LOCATION FOR INITIATING OR CARRYING OUT YOUR PURPOSE IN THE DEPARTMENT.
2. MINIMIZE THE TIME YOU MUST SPEND ACHIEVING THE PURPOSE FOR WHICH YOU HAVE COME TO THE DEPARTMENT.
3. DO NOT STAND ANY CLOSER TO PATIENTS THAN NECESSARY.
4. DO NOT ENTER THE HOT LAB WITHOUT TECHNICAL ASSISTANCE.
5. READ ALL DEPARTMENT POLICY REQUIREMENTS REGARDING FOOD, ETC., IN THE DEPARTMENT- FOLLOW THE REGULATIONS.
6. DO NOT HANDLE ANY SYRINGES THAT YOU DID NOT BRING TO THE DEPARTMENT.
7. DISPOSE OF ANY WASTE FROM THE ROOM AS INDICATED BY THE TECHNOLOGIST.
8. DO NOT DISCARD ANY PACKAGES WITH AN INTACT RADIOACTIVE MATERIALS LABEL.
9. ENTER ONLY THOSE ROOMS IN WHICH YOU HAVE BEEN TOLD TO BY THE DEPARTMENT PERSONNEL.
10. IF YOU HAVE ANY QUESTIONS ASK FIRST, THEN ACT.

## EMERGENCY AREA

PROCEDURE FOR ACCEPTING AND INSPECTING  
PACKAGES CONTAINING RADIOACTIVE MATERIALS

- A. CONFIRMATION OF RADIOACTIVE MATERIALS SHIPMENT  
VERIFY THE IDENTITY AND AMOUNT ORDERED.
- a. IF THE RADIOACTIVE MATERIAL LISTED ON THE ELIZABETH GENERAL MEDICAL CENTER ORDER SHEET CORRELATES WITH THAT ON PACKING SLIP, PROCEED WITH CHECK OF CONDITION OF PACKAGE AS DESCRIBED IN SECTION B OF THESE PROCEDURES.
  - b. IF THE RADIOACTIVE MATERIAL LISTED ON THE ELIZABETH GENERAL MEDICAL CENTER ORDER SHEET DOES NOT CORRESPOND WITH THAT ON PACKING SLIP:
    1. NOTIFY DEPARTMENT TO WHOM PACKAGE WAS SHIPPED.
    2. THE SHIPPER SHALL ALSO BE NOTIFIED.
- B. CONDITION EVALUATION OF RADIOACTIVE MATERIALS SHIPMENT.
- a. IF PUNCTURED, WET, CRUSHED, STAINED OR OTHER VISIBLE INDICATION OF DAMAGE:
    1. NOTIFY DEPARTMENT TO WHOM PACKAGE WAS SHIPPED OF DAMAGE.
    2. THE RADIOLOGIC TECHNOLOGIST SHALL THEN PROCEED WITH STEP C-A BELOW AND STEP 6 OF THE PROCEDURE FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS.
    3. ALSO DETAIN THE CARRIER UNTIL RADIATION SAFETY OFFICER CAN DETERMINE THAT NEITHER THE CARRIER OR HIS VEHICLE IS CONTAMINATED.
  - b. IF CONDITION IS OKAY, ACCEPT PACKAGE.
    1. PUT DISPOSABLE LATEX GLOVES ON HANDS AND PLACE PACKAGE AGAINST REAR WALL OF STORAGE CLOSET # 1. REMOVE GLOVES AND PLACE THEM ON PACKAGE, LOCK DOOR AND NOTIFY RADIOLOGY TECHNOLOGIST ON CALL, TELEPHONE NO. 2277 TO REMOVE PACKAGE FROM EMERGENCY AREA.
- C. RADIATION LEVEL DETERMINATION, AT 3 FEET FROM SURFACE OF PACKAGE CONTAINING RADIOACTIVE MATERIALS. THE RADIOLOGY TECHNOLOGIST SHALL DETERMINE RADIATION LEVELS WITH A THIN END-WINDOW GEIGER MUELLER SURVEY METER.
- a. IF RADIATION LEVELS ARE GREATER THAN 10 MR/HR, LEAVE PACKAGE IN STORAGE CLOSET.
    1. NOTIFY DEPARTMENT, TO WHOM PACKAGE WAS SHIPPED, OF HIGH LEVELS.
    2. DEPARTMENT TO WHOM PACKAGE WAS SHIPPED SHALL NOTIFY PUBLIC CARRIER, THAT DELIVERED PACKAGE, AND THE NRC REGIONAL OFFICE OF INSPECTION AND ENFORCEMENT.

- b. IF RADIATION LEVELS ARE LESS THAN 10/MR/HR, THE RADIOLOGIC TECHNOLOGIST SHALL PLACE DISPOSABLE LATEX GLOVES ON HANDS AND PROCEED TO DELIVER PACKAGE TO "HOT" LABORATORY IN NUCLEAR MEDICINE DEPARTMENT. THE RADIOLOGIC TECHNOLOGIST'S GLOVES AND THOSE CARRIED OVER FROM THE EMERGENCY DEPARTMENT ARE TO BE DISCARDED INTO COMMERCIAL DISPOSAL WASTE CONTAINER.
- D. DURING OFF DUTY HOURS (DAILY BETWEEN 4:00 PM AND 7:00 AM AND ALL DAY SATURDAY AND SUNDAY), ALL PACKAGES CONTAINING RADIOACTIVE MATERIAL SHALL BE SIGNED FOR BY SECURITY PERSONNEL. THE PACKAGE SHALL BE LOCKED IN THE "LOCK BOX" OUTSIDE NUCLEAR MEDICINE. THE KEY TO THE OUTSIDE DOOR OF THE "LOCK BOX" SHALL BE KEPT ONLY BY AUTHORIZED SECURITY PERSONNEL. THE KEY TO THE INSIDE DOOR OF THE "LOCK BOX" SHALL BE KEPT ONLY BY AUTHORIZED NUCLEAR MEDICINE STAFF.
- E. ALL PACKAGES TO BE RETURNED TO PHARMACEUTICAL SUPPLIERS, THAT CONTAIN RADIOACTIVE MATERIALS SHALL BE LOCKED IN THE "LOCK BOX" BY NUCLEAR MEDICINE STAFF. SECURITY PERSONNEL SHALL OPEN THE "LOCK BOX" WHEN THE PICK UP IS MADE.

ELIZABETH GENERAL MEDICAL CENTER  
NUCLEAR MEDICINE DEPARTMENT

PROCEDURE FOR SAFELY OPENING PACKAGES  
CONTAINING RADIOACTIVE MATERIALS

1. PLASTIC GLOVES AND LAB COAT MUST BE WORN FOR OPENING PACKAGE, FOR THE PROTECTION OF THE SURVEYOR.
2. PLACE PACKAGE BEHIND RADIATION SHIELD, ON A SURFACE WITH ABSORBENT MATERIAL. TREAT PACKAGE AS CONTAMINATED UNTIL PROVEN OTHERWISE.
3. RADIATION LEVELS AT THE SURFACE AND AT 3 FEET FROM THE SURFACE OF THE PACKAGE MUST BE DETERMINED WITHIN:
  - a. 3 HOURS IF RECEIVED DURING NORMAL WORK HOURS.
  - b. 12 HOURS IF RECEIVED AFTER NORMAL WORK HOURS.
4. MEASURE EXPOSURE RATE, WITH THIN-WINDOW TYPE GEIGER MUELLER SURVEY METER, AT 3 FEET FROM PACKAGE SURFACE AND RECORD RESULTS.
  - a. IF GREATER THAN 10 MR/HR, PROCEED WITH CAUTION. NOTIFY PUBLIC CARRIER THAT DELIVERED PACKAGE AND NRC REGIONAL OFFICE OF INSPECTION AND ENFORCEMENT.
  - b. IF LESS THAN 10 MR/HR, PROCEED TO SECTION 6 OF THESE PROCEDURES.
5. MEASURE EXPOSURE RATE, WITH IONIZATION-TYPE SURVEY METER, AT SURFACE AND RECORD RESULTS.
  - a. IF GREATER THAN 200 MR/HR, PROCEED WITH CAUTION. NOTIFY CARRIER THAT DELIVERED PACKAGE AND NRC REGIONAL OFFICE OF INSPECTION AND ENFORCEMENT.
  - b. IF LESS THAN 200 MR/HR, PROCEED TO SECTION 6 OF THESE PROCEDURES.
6. OBSERVE AND RECORD CONDITION OF PACKAGE.
  - a. IF PACKAGE IS PUNCTURED, WET, CRUSHED OR STAINED, PERFORM A WIPE OF CONCERNED AREA:
    1. FOR HIGH ENERGY BETA EMITTERS, DETERMINE EXTENT OF CONTAMINATION WITH THIN END-WINDOW GEIGER MUELLER COUNTER, AND RECORD RESULTS.
    2. FOR PURE GAMMA EMITTERS, DETERMINE EXTENT OF CONTAMINATION WITH A GAMMA SCINTILLATION COUNTER, AND RECORD RESULTS.
  - b. IF ACTIVITY OF WIPE IS GREATER THAN 0.01 UCI (22,000 D.P.M.) PROCEED WITH CAUTION. NOTIFY PUBLIC CARRIER THAT DELIVERED PACKAGE AND NRC REGIONAL OFFICE OF INSPECTION AND ENFORCEMENT.
  - c. IF ACTIVITY OF WIPE IS LESS THAN 0.01 UCI, PROCEED TO SECTION 7 OF THESE PROCEDURES.
7. OPEN PACKAGE TO VERIFY CONTENTS.
  - a. DETERMINE WHETHER RADIOACTIVE MATERIAL LISTED ON REQUISITION PACKING SLIP CORRESPONDS WITH THAT ON LABEL OF BOTTLE.
  - b. INSPECT FINAL SOURCE CONTAINER TO ASCERTAIN WHETHER SEAL OR BOTTLE HAS BEEN DAMAGED.
  - c. CHECK THAT SHIPMENT DOES NOT EXCEED POSSESSION LIMITS.

ELIZABETH GENERAL MEDICAL CENTER  
NUCLEAR MEDICINE DEPARTMENT

PROCEDURE FOR SAFELY OPENING PACKAGES  
CONTAINING RADIOACTIVE MATERIALS

8. USING FORCEPS, WIPE EXTERNAL SURFACE OF FINAL SOURCE CONTAINER WITH MOISTENED COTTON SWAB OR FILTER PAPER.
  - a. FOR HIGH ENERGY BETA EMITTERS DETERMINE EXTENT OF CONTAMINATION WITH THIN END-WINDOW GEIGER MUELLER COUNTER, AND RECORD RESULTS.
  - b. FOR PURE GAMMA EMITTERS, DETERMINE EXTENT OF CONTAMINATION WITH A GAMMA-SCINTILLATION COUNTER, AND RECORD RESULTS.
  - c. IF ACTIVITY OF WIPE IS GREATER THAN 0.01 UCI (22,000 D.P.M.) PROCEED WITH CAUTION. NOTIFY PUBLIC CARRIER THAT DELIVERED PACKAGE AND NRC REGIONAL OFFICE OF INSPECTION AND ENFORCEMENT.
  - d. IF ACTIVITY OF WIPE IS LESS THAN 0.01 UCI, PROCEED TO USE RADIOACTIVE MATERIAL FOR PATIENT PURPOSES.
  - e. ALL ASSAYS WILL BE PERFORMED IN A LOW BACKGROUND AREA AND THE RESULT SHALL BE RECORDED ON THE APPROPRIATE FORM - SEE SAMPLE FORM ATTACHED.

MONITOR THE PACKING MATERIAL AND PACKAGES FOR CONTAMINATION BEFORE DISCARDING:

- a. FOR HIGH ENERGY BETA EMITTERS DETERMINE EXTENT OF CONTAMINATION WITH THIN END-WINDOW GEIGER MUELLER COUNTER, AND RECORD RESULTS.
- b. FOR PURE GAMMA EMITTERS, DETERMINE EXTENT OF CONTAMINATION WITH A GAMMA-SCINTILLATION COUNTER, AND RECORD RESULTS.
- c. IF CONTAMINATED, TREAT AS RADIOACTIVE WASTE.
- d. IF NOT CONTAMINATED, OBLITERATE RADIATION LABELS BEFORE DISCARDING IN REGULAR TRASH.
- e. ALL ASSAYS WILL BE PERFORMED IN A LOW BACKGROUND AREA AND THE RESULT SHALL BE RECORDED ON THE APPROPRIATE FORM - SEE SAMPLE FORM ATTACHED.

ELIZABETH GENERAL MEDICAL CENTER  
NUCLEAR MEDICINE DEPARTMENT

RADIOACTIVE SHIPMENT RECEIPT REPORT

1. PURCHASE ORDER # \_\_\_\_\_ SURVEY DATE \_\_\_\_\_  
PUBLIC CARRIER \_\_\_\_\_ TIME \_\_\_\_\_  
VENDOR \_\_\_\_\_ SURVEYOR \_\_\_\_\_

2. CONDITION OF PACKAGE:

\_\_\_\_\_ O.K. \_\_\_\_\_ PUNCTURED \_\_\_\_\_ STAINS  
\_\_\_\_\_ WET \_\_\_\_\_ CRUSHED \_\_\_\_\_ OTHER

3. RADIATION UNITS OF LABEL: \_\_\_\_\_ MR/HR

4. MEASURED RADIATION LEVELS:

a. PACKAGE SURFACE \_\_\_\_\_ MR/HR  
b. 3 FEET FROM SURFACE \_\_\_\_\_ MR/HR

5. DOES PACKING SLIP AND VIAL CONTENTS AGREE?

a. RADIONUCLIDE \_\_\_\_\_ YES \_\_\_\_\_ NO  
b. AMOUNT \_\_\_\_\_ YES \_\_\_\_\_ NO  
c. CHEMICAL FORM \_\_\_\_\_ YES \_\_\_\_\_ NO

IF YOU HAVE CHECKED NO, STATE THE DIFFERENCE \_\_\_\_\_  
\_\_\_\_\_

6. WIPE RESULTS FROM:

a. OUTER SURFACES OF PACKAGE \_\_\_\_\_ CPM \_\_\_\_\_ DPM  
EFF. = ( )  
b. FINAL SOURCE CONTAINER \_\_\_\_\_ CPM \_\_\_\_\_ DPM  
EFF. = ( )

7. SURVEY RESULTS OF:

a. PACKING MATERIAL \_\_\_\_\_ MR/HR  
\_\_\_\_\_ CPM ABOVE BKG.  
b. CARTONS \_\_\_\_\_ MR/HR  
\_\_\_\_\_ CPM ABOVE BKG.

ELIZABETH GENERAL MEDICAL CENTER  
NUCLEAR MEDICINE DEPARTMENT  
RADIOACTIVE SHIPMENT RECEIPT REPORT

SHEET #2

8. IF PACKAGE WAS SHIPPED WITH DRY ICE, WAS DRY ICE PRESENT  
AT TIME OF RECEIPT?

\_\_\_\_\_ YES \_\_\_\_\_ NO \_\_\_\_\_ N/A

9. DISPOSITION OF PACKAGE AFTER INSPECTION: \_\_\_\_\_  
\_\_\_\_\_

10. WAS NRC AND PUBLIC CARRIER NOTIFICATION REQUIRED \_\_\_\_\_ YES \_\_\_\_\_ NO.

IF YES, DATE:

TIME:

PERSONS NOTIFIED:

The Elizabeth General Hospital  
 Nuclear Medicine Department  
 Record of Radioactive Materials

Radionuclide	Chemical Form	Date Received	Amount (mCi) as of Date Received	Amount (mCi) as of Cal. Date	Date of Use	Amount (mCi) Used	Date of Waste Disposal	Amount of (uCi) Disposed	Manner of Disposal
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## APPENDIX G

## GENERAL RULES FOR SAFE USE OF RADIOACTIVE MATERIAL

1. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.
2. Wear disposable gloves at all times while handling radioactive materials.
3. Monitor hands and clothing for contamination after each procedure or before leaving the area.
4. Always use syringe shields for routine preparation of patient doses and administration to patients, except in circumstances such as pediatric cases when their use would compromise the patient's well-being. In these exceptional cases, use other protective methods such as remote delivery of the dose (e.g., through use of a butterfly valve).
5.
  - a. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material is stored or used.
  - b. Do not store food, drink, or personal effects with radioactive material.
6.
  - a. Assay each patient dose in the dose calibrator prior to administration. Do not use any doses that differ from the prescribed dose by more than 10 percent.
  - b. For therapeutic doses, also check the patient's name, the radionuclide, the chemical form, and the activity vs. the order written by the physician who will perform the procedure.
7. Wear personnel monitoring devices (film badge or TLD) at all times while in areas where radioactive materials are used or stored. These devices should be worn at chest or waist level. Personnel monitoring devices when not being worn to monitor occupational exposures should be stored in a designated low background area.
8. Wear TLD finger badges during elution of generator and preparation, assay, and injection of radiopharmaceuticals.
9. Dispose of radioactive waste only in specially designated and properly shielded receptacles.
10. Never pipette by mouth.
11. Survey generator, kit preparation, and injection areas for contamination after each procedure or at the end of the day. Decontaminate if necessary.
12. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date, activity, and radiation level, if applicable.
13. Always transport radioactive material in shielded containers.