NRC FORM 313M
(9-81)
10 CFR 35

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIALS LICENSE – MEDICAL

Approved by OMB
3150-0041
Expires 9-30-83

INSTRUCTIONS – *Complete Items 1 through 26 if this is an initial application or an application for renewal of a license. Use supplemental sheets where necessary. Item 26 must be completed on all applications and signed. Retain one copy. Submit original and one copy of entire application to: Director, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Upon approval of this application, the applicant will receive a Materials License. An NRC Materials License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.*

1.a. NAME AND MAILING ADDRESS OF APPLICANT *(Institution, firm, clinic, physician, etc.)* INCLUDE ZIP CODE

Passiac General Hospital
350 Boulevard
Passiac, New Jersey 07055

Code 23

TELEPHONE NO.: AREA CODE (201) 365 4300

1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED *(If different from 1.a.)* INCLUDE ZIP CODE

350 Boulevard
Passiac, New Jersey 07055

2. PERSON TO CONTACT REGARDING THIS APPLICATION

Arthur S. Weisel, M.D.

TELEPHONE NO.: AREA CODE (201) 365 4457

3. THIS IS AN APPLICATION FOR: *(Check appropriate item)*

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO. _____
c. ☒ RENEWAL OF LICENSE NO. 29-01040-03

4. INDIVIDUAL USERS *(Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)*

Milton Gallant, M.D.
Mark Hebel, M.D.
Arthur S. Weisel, M.D.

5. RADIATION SAFETY OFFICER (RSO) *(Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)*

Arthur S. Weisel, M.D.

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS *(In millicuries)*
10 CFR 31.11 FOR IN VITRO STUDIES	x	2
10 CFR 35.100, SCHEDULE A, GROUP I	x	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II	x	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III	x	2000
10 CFR 35.100, SCHEDULE A, GROUP IV	x	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP V	N/A	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP VI	N/A	

ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS *(In millicuries)*
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM	x	30
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES	N/A	
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.	N/A	
GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.	N/A	
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA	N/A	
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.	N/A	

6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a. *(Sealed sources up to 3 mCi used for calibration and reference standards are authorized under Section 35.14(d), 10 CFR Part 35, and NEED NOT BE LISTED.)*

ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
None			

RECEIVED BY LFMB
Date 4/19/83
APRIL 13
Brown

Applicant
Check No.
Amount
By
Orig. To
Action Completed

47500
4/19/83
Renewal
4/19/83
Brown

01286

APR 11 1983

NRC FORM 313M
(9-81)

4/25/83
Brown

"OFFICIAL RECORD COPY" ML10

INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

For Items 7 through 23, check the appropriate box(es) and submit a detailed description of all the requested information. Begin each item on a separate sheet. Identify the item number and the date of the application in the lower right corner of each page. If you indicate that an appendix to the medical licensing guide will be followed, do not submit the pages, but specify the revision number and date of the referenced guide: Regulatory Guide 10.8 , Rev. 1 Date: Oct. 1980

7. MEDICAL ISOTOPES COMMITTEE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL *(Check One)*	
x	Names and Specialties Attached; and		Appendix G Rules Followed; or
x	Duties as in Appendix B; or *(Check One)*	x	Equivalent Rules Attached
	Equivalent Duties Attached	16. EMERGENCY PROCEDURES *(Check One)*	
8. TRAINING AND EXPERIENCE			Appendix H Procedures Followed; or
x	Supplements A & B Attached for Each Individual User; and See letters Dated 12/20/77, 5/30/78 10/31/79, 3/16/82, 12/22/82	x	Equivalent Procedures Attached
	Supplement A Attached for RSO.	17. AREA SURVEY PROCEDURES *(Check One)*	
9. INSTRUMENTATION *(Check One)*			Appendix I Procedures Followed; or
x	Appendix C Form Attached; or	x	Equivalent Procedures Attached
	List by Name and Model Number	18. WASTE DISPOSAL *(Check One)*	
10. CALIBRATION OF INSTRUMENTS		x	Appendix J Form Attached; or
	Appendix D Procedures Followed for Survey Instruments; or *(Check One)*		Equivalent Information Attached
x	Equivalent Procedures Attached; and	19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS *(Check One)*	
	Appendix D Procedures Followed for Dose Calibrator; or *(Check One)*		Appendix K Procedures Followed; or
x	Equivalent Procedures Attached	x	Equivalent Procedures Attached
11. FACILITIES AND EQUIPMENT		20. THERAPEUTIC USE OF SEALED SOURCES	
x	Description and Diagram Attached	N/A	Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM			Appendix L Procedures Followed; or *(Check One)*
x	Description of Training Attached		Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL		21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon – 133)	
x	Detailed Information Attached	N/A	Detailed Information Attached
14. PROCEDURES FOR SAFELY OPENING PACKAGES CONTAINING RADIOACTIVE MATERIALS *(Check One)*		22. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL IN ANIMALS	
		N/A	Detailed Information Attached
	Appendix F Procedures Followed; or	23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
x	Equivalent Procedures Attached	N/A	Detailed Information Attached

01286

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)			SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	X	FILM	R.S. Landauer, Jr. & Co.	
		TLD		
		OTHER (Specify)		
b. FINGER		FILM	R.S. Landauer,Jr. & Co.	
	X	TLD		
		OTHER (Specify)		
c. WRIST		FILM	Not Used	
		TLD		
		OTHER (Specify)		

d. OTHER (Specify)

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL: Passiac General Hospital

MAILING ADDRESS: 350 Boulevard

CITY: Passiac | STATE: NJ | ZIP CODE: 07055

b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR

c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS

26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)*

(1) LICENSE FEE CATEGORY 7B

(2) LICENSE FEE ENCLOSED $150.00

b. APPLICANT OR CERTIFYING OFFICIAL (Signature)

(1) NAME (Type or Print): James B. Marks

(2) TITLE: Administrator

c. DATE: 4/1/83

01256

NRC FORM 313A (10-81)

RADIATION SAFETY COMMITTEE

Arthur S. Weisel, M.D.	Radiation Safety Officer
Kenneth Capek	Assistant Administrator
Milton Gallant, M.D.	Radiologist
Matthew Scinto, R.T.	Radiology Administrator
Agnes Carter,RNMT	Chief Nuclear Medicine Tech.
Jean Karnis, R.N.	Nurse

APPENDIX C

INSTRUMENTATION

1. Survey meters

   a. Manufacturer's name: Eon

      Manufacturer's model number: 1A

      Number of instruments available: 1

      Minimum range: 0 mR/hr to 0.5 mR/hr

      Maximum range: 0 mR/hr to 50 mR/hr

   b. Manufacturer's name: Baird Atomic

      Manufacturer's model number: 04416

      Number of instruments available: 1

      Minimum range: 0 mR/hr to 100 mR/hr

      Maximum range: 0 mR/hr to 100,000 mR/hr

2. Dose calibrator

   Manufacturer's name: Capintec

   Manufacturer's model number: 6A

   Number of instruments available: 1

3. Instruments used for diagnostic procedures

Type of Instrument	Manufacturer's Name	Model No.
Gamma Camera	General Electric	Maxicamera 37C
Gamma Camera	General Electric	Portacamera IIC

4. Other (e.g., liquid scintillation counter, area monitor, velometer)

   None

CALIBRATION OF SURVEY INSTRUMENTS

CHECK APPROPRIATE ITEMS

__X__ 1. Survey instruments will be calibrated at least annually and following repair.

__X__ 2. Calibration will be performed at two points on each scale. The two points will be approximately 1/3 and 2/3 of full scale. A survey instrument may be considered properly calibrated when the instrument readings are within + 10% of the calculated or known values for each point checked. Readings within + 20% are considered acceptable if a calibration chart or graph is prepared and attached to the instrument.

__X__ 3. Survey instruments will be calibrated.

_____ a. By manufacturer

_____ b. At the licensee's facility

(i) Calibration source
Manufacturer's name _____
Model No. _____
Activity in millicuries _____
Accuracy _____
Traceability to primary standard _____

(ii) The calibration procedures in Appendix D, Section I will be used.

or

(iii) The step-by-step procedures, including radiation safety procedures are attached.

__X__ c. By a consultant or outside firm

(i) Name Bio-Med Associates Inc.

(ii) Location 753 Boulevard, Kenilworth, N.J. 07060

(iii) Procedures and sources

__X__ have been approved by NRC and are on file in License No. 29-14967-01

_____ are attached.

CALIBRATION OF INSTRUMENTS

Consistency Checks of Survey Meters

1. Prior to use, each survey meter is tested employing a long-lived check source in a reproducible geometry. The meter reading is noted for comparison in future tests to assure consistency of response.

2. The consultant physicist maintains a log of spot-checks on each survey meter. The variation of greater than ±20% from the initial check after calibration will warrant repair and/or re-calibration.

Methods for Calibration of a Dose Calibrator

All radiopharmaceuticals are assayed for activity to an accuracy of ±10%. The instrument is tested as follows:

I. Daily checks are performed using a long lived reference standard (e.g., 200uCi of Cs-137 or 1mCi of Co-57). The two standards will be alternated for the daily test. The standard reading is corrected for background and compared to the decay corrected calibrated activity. An observed deviation of greater than ±5% will warrant recalibration and/or repair. This check is performed by the nuclear medicine technician. The date, decay corrected activity, background, net standard assay, and percent deviation are logged. Deviations greater than ±5% are reported to the consultant radiation physicist for futher evaluation.

II. Monthly checks are performed using each of the following long lived reference standards:

Radionuclide	Activity	Accuracy
Cobalt 57	1.08 mCi	± 5%
Cesium 137	208 uCi	± 5%
Cobalt 60	56 uCi	± 5%

The standard readings are compared to their decay corrected calibrated activities as shown in the attached sample log sheet "Dose Calibrator Standard Sensitivity". A deviation of greater than ±5% on any standard will warrant recalibration or repair. This check is performed by the consultant radiation physicist. For dose calibrators employing activity concentration mode (Activity per ml.), this mode will be tested monthly employing one of the above reference standards according to the attached sample log sheet "Dose Calibrator Concentration Calculation Test". A deviation of greater than ±5% will warrant recalibration or repair. These monthly tests are performed by the consultant radiation physicist.

III. Quarterly tests are performed using a long lived reference standard (e.g., Cs-137) and recording the apparent activity indicated at all of the commonly used radionuclide settings. The source readout is compared to previous tests (correcting for decay) and a percent difference is computed. A deviation of greater than ±5% will warrant recalibration or repair. Tests of background energy linearity and condition of the chamber liner and source holder are also performed. A sample log sheet is attached specifying the "Quarterly Dose Calibrator Analysis".

IV. Tests of the instrument activity linearity are also performed quarterly employing a Tc-99m source. When only "instant" Technetium-99m is used, the largest activity per vial purchased will be used for the test. When generators are used, the first elution of a new generator will be used when practical. An activity of at least 100mCi will be used with generators since 100mCi is greater than or equal to the largest anticipated administered dose or the largest amount used in preparation of radiopharmaceutical kits. Although larger activities may be assayed (e.g., first elution of a Mo-99-Tc-99m generator), this is only used to provide an approximation of the volume needed to prepare an individual dose. The following specifies procedures for assaying a patient dose:

(1) Entire elution of a generator is assayed, the volume of the eluate is approximated, and the concentration is calculated. For example, the eluate may be 200mCi in 10ml or 20mCi/ml.
(2) At the time the study is to be performed the concentration is decay corrected.
(3) To prepare a given dose, the desired activity is divided by the decay corrected concentration yielding the volume to be administered.
(4) Prior to injection the individual dose is assayed (correcting for geometrical variation if necessary) to verify the proper activity.

A similar procedure is employed in administration of radiopharmaceutical kits. The activity to be used in the kit is assayed and volume approximated. After the kit is properly prepared, the concentration in mCi/ml is assayed using the total volume employed in the kit (correcting for the volume of saline or other diluting agent added). At the time of administration, the procedures listed above in steps (2) through (4) are followed.

The activity linearity test is performed by assaying the Tc-99m source at various times and comparing the readings to the expected decay corrected values. This is achieved by constructing a semi-log graph of the readings vs. time. (See attached sample log sheet "Activity-Range Sensitivity Check"). The graph permits data points to be plotted up to 56 hours of decay time. If more than 56 hours of decay time is required to encompass the entire range of activities administered, the data points will be compared to the calculated decay values and percentage errors computed. If the deviation between the instrument reading and decay corrected value is greater than $\pm 5\%$ at any point in the range of administered activities, the instrument will be repaired.

V. A one-time test is performed (usually at installation) to access the instrument accuracy with regard to geometrical variation of source containers. This test is performed with each radionuclide used. The following specifies procedures performed in the geometrical variation test:

(1) For each different vial and syringe used to contain a given radioactive material for assay, a 0.1ml aliquot (1-5mCi) of equal activity will be prepared.
(2) A 30cc vial will always be employed since each of the previously described reference standards are 20cc in a 30cc vial.
(3) Each 0.1ml aliquot will be transferred to each vial or syringe.
(4) Each vial and syringe will be diluted with water and reassayed as indicated in the attached sample log sheet "Geometrical Variation Test".
(5) All instrument readings for each volume of liquid in the vial or syringe will be divided by the reading obtained for 20cc of liquid in the 30cc vial to obtain the correction factor.
(6) The correction factor is a number to divide into the indicated instrument reading to obtain the true activity.

This test is performed by the consultant radiation physicist, who will make a determination as to whether a geometrical correction factor need be employed to assure overall ±10% accuracy. This determination will be made with regard to the magnitude of the inaccuracies encountered in the other tests. Generally, a geometrical correction factor of less than 2% may be ignored.

Calibration of Diagnostic Instruments

I. Gamma Camera(s)

A. High voltage - gain calibration (isotope peaking) is performed daily with each imaging nuclide. For a given photon energy, a corresponding energy window is set on the spectrometer and the high voltage or gain is adjusted to yield the maximum count rate This calibration is performed by the nuclear medicine technician The result (Setting) is logged.

B. A Uniformity check with a Tc-99m point source (~ 100uCi) or Co-57 flood source (~ 2mCi) is also performed daily by the nuclear medicine technician to assure the absence of artifacts in the diagnostic image. The image is filed in the calibration log.

C. The following calibrations and quality control tests, in addition to those above, are performed monthly (or as frequently as time permits) by the consultant radiation physicist.

1. Photopeak Energy Resolution Tests are performed employing a Co-57 and/or Tc-99, source with the camera's pulse height Analyzer. A gamma-ray energy spectrum is plotted for Co-57. Using the Full-Width-Half-Maximum approach the percentage photopeak resolution is computed and compared to the manufacturer's specification. Abrupt changes in photopeak resolution will warrant repair.

2. Statistical Analyses are performed by taking consecutive counts from a long lived reference source (e.g. Co-57) under identical conditions. The mean and ± 2 standard deviation range of the consecutive counts are computed. A Chi-Square Test is performed. If the observed Chi-Square value lies outside the 90% probability limits, a second test is performed. If the second test yields a Chi-Square value outside the 90% probability limits, repair is warranted.

3. Standard Sensitivity - using a calibrated reference standard in a reproducable geometry (e.g. ~ 2mCi Co-57 flood source), the number of counts per minute divided by the standard activity (in discintegrations per minute is calculated. This is performed to monitor consistency of detector efficiency and relative collimator sensitivity.

4. Spatial Resolution Tests are performed using the sources employed in the Uniformity test and a bar phantom. The thickness of the smallest bars resolved are recorded and compared with the manufacturer's specifications and results

of previous tests to monitor consistancy of response. A A alternate method of assessing spatial resolution is to image a line source of Tc-99m or Co-57 (~ 500uCi) and determine the line spread function (Full Width at Half Maximum). For Gamma Cameras that have applicable computers interfaced, the Modulation Transfer Function is computed based on the line-spread function.

5. Background Test is performed by monitoring the background count rate to detect possible collimator contamination or unexpected Xenon in the atmosphere. On instruments that employ a multi-channel analyzer, a background spectrum will be recorded to simplify the determination of any detected contaminants.

D. The following quality control tests are performed periodically as time permits by the consultant radiation physicist:

1. Dead time and maximum count rate are measured at installation and compared with the manufacturer's specifications to determine count-rate capability of the instrument employing two sources of 2mCi of Tc-99m each. The usable count-rate can be determined by plotting observed count rate vs. activity and determining the count rate where the expected count rate (as found by straight line exprapolation) differs from observed count rate by 10%. The count rate loss encountered in recording clinical information onto storage media may be assessed by accumlating a counts in live-time over a preset-time while recording the events. In the playback mode, accumlating counts in the same preset time will allow determination of the count-rate loss.

2. Quantization of Uniformity is performed at installation and periodically there after for a less subjective assessment. The radionuclides employed are the same. By accumulating counts within regions of interest of equal size situated over observed "Hot" and "Cold" areas and taking the ratio of the counts, the deviation can be compared to manufacturer's specifications. An alternate method is to compare counts rates obtained in the "Split Crystal" mode (if applicable). The ratio of the counts in the right half to the left half may be taken.

Written reports of the above calibrations and quality control tests are maintained for evaluation.

Date _____

Geometrical Variation Test

Hospital: _____

Instrument: _____

Radionuclide: _____

30cc Vial

Time of Assay	Volume	Reading	Decay Corrected Reading	Correcti Factor
	0.1 ml		---	
	2 ml			
	4 ml			
	6 ml			
	8 ml			
	10 ml			
	12 ml			
	14 ml			
	16 ml			
	18 ml			
	20 ml			1.000
	22 ml			
	24 ml			
	26 ml			
	28 ml			
	30 ml			

Correction factor = $\frac{\text{Decay Corrected Reading @ Volume (x)}}{\text{Decay Corrected Reading @ Volume (20 ml for 30 r}}$

Page 2 Geometrical Variation Test Continued

1cc Syringe

Time of Assay	Volume	Reading	Decay Corrected Reading	Correction Factor
	0.1 ml			
	0.2 ml			
	0.3 ml			
	0.4 ml			
	0.5 ml			
	0.6 ml			
	0.7 ml			
	0.8 ml			
	0.9 ml			
	1.0 ml			

3cc Syringe

Time of Assay	Volume	Reading	Decay Corrected Reading	Correction Factor
	0.1 ml			
	0.5 ml			
	1.0 ml			
	1.5 ml			
	2.0 ml			
	2.5 ml			
	3.0 ml			

Page 3 Geometrical Variation Test Continued

5cc Vial

Time of Assay	Volume	Reading	Decay Corrected Reading	Correctio Factor
	0.1 ml			
	0.5 ml			
	1.0 ml			
	1.5 ml			
	2.0 ml			
	2.5 ml			
	3.0 ml			
	3.5 ml			
	4.0 ml			
	4.5 ml			
	5.0 ml			

Other Container

Time of Assay	Volume	Reading	Decay Corrected Reading	Correctic Factor

QUARTERLY DOSE CALIBRATOR ANALYSIS

HOSPITAL: _____

MODEL DOSE CALIBRATOR: _____

DATE: _____

1. Check liner
   a. Contaminated?
   b. In place?

2. Check support
   a. In tact?

3. Instrument Zero
   a. Was zeroed?
   b. Adjustment necessary?

4. Lead shielded? Yes _____ No _____

5. _____ reference standard is _____ uCi today. When placed in the dose calibrator it read on the following settings:

		Cap.	Eon	Pick.	% different from original
_____	uCi @ Mo-99 setting	30x3.5	342	2133	_____
_____	uCi @ Tc-99 setting	80	501	1117	_____
_____	uCi @ Ga-67 setting	94	478	1139	_____
_____	uCi @ Cr-51 setting	100x10	459 x10	6596	_____
_____	uCi @ Co-57 setting	112	453	1138	_____
_____	uCi @ I-131 setting	151	327	1194	_____
_____	uCi @Xe-133 setting	188	497	1205	_____
_____	uCi @Tl-201 setting	205	458	--	_____
_____	uCi @Cs-137 setting	220	260	1253	_____
_____	uCi @ Se-75 setting	258	210	1236	_____
_____	uCi @ I-123 setting	277	260	--	_____
_____	uCi @ I-125 setting	319	421	0151	_____

 Quarterly Dose Calibrator Analysis

		Cap.	Eon	Pick.	% difference from original
_____ uCi @ P-32	setting	550x100 -		6347	_____
_____ uCi @ Ra-226	setting	778	058	0139	_____
_____ uCi @ Yb-169	setting	844	--	--	_____
_____ uCi @ Co-60	setting	990	035	0218	_____
_____ uCi @ Xe-127	setting	___	___	___	_____

6. Yes _____ No _____ Instrument was adjusted or repaired, to read ±

   Yes _____ No _____ Instrument was within ±5% of previous values

   Yes _____ No _____ A correction factor was posted. It is _____

7. Volume and Concentration Check

   a. _____ in 20 cc vial reads _____ uCi/cc _____ N/A

   b. _____ in 20 cc vial calculated is _____ uCi/cc

   c. % of difference is _____

8. Accuracy of Standards
   Decay corrected expected uCi/assay uCi x 100 = % accuracy

   Co-57

   Cs-137

   Ba-133

   Co-60

   Ra-226

9. Comparison of Pushbutton to Manual setting _____, _____ N/A

10. Any modules missing? _____, _____ N/A

11. Cs-137/Co-57 decay-corrected ratio =

    This is _____ % different from last quarter's; therefore,

12. Comments

Checked by: _____

DOSE CALIBRATOR CONCENTRATION CALCULATION CHECK

Date	Calibration Standard	Decay Corrected Activity (uCi)	Standard Volume (cc)	Standard Activity (uCi/cc)	Dose Calibrator Assay (uCi/cc)	%Error From Standard	Comment

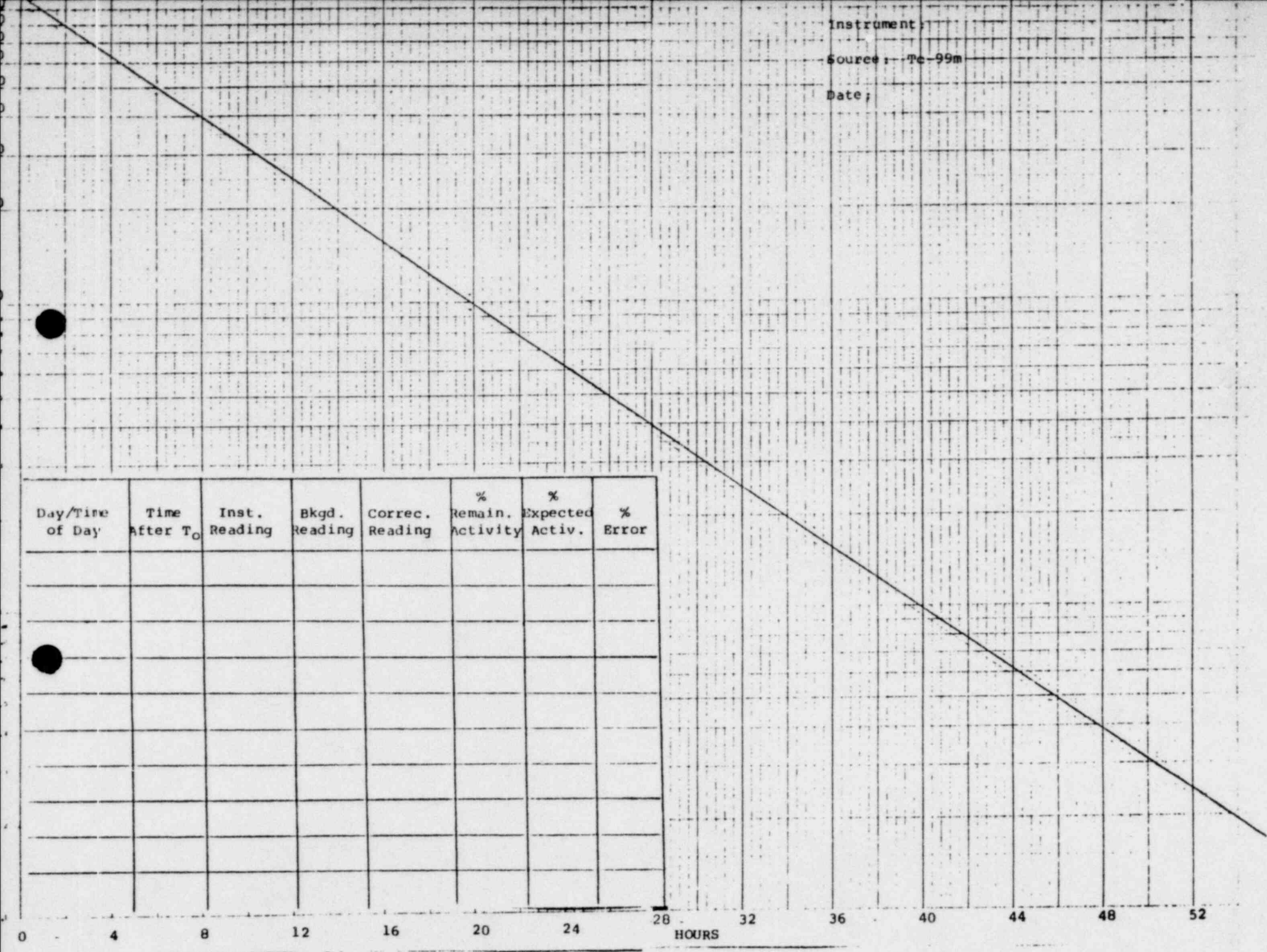
Radiological Physicist

Instrument:

Source: Tc-99m

Date:

Day/Time of Day	Time After T_o	Inst. Reading	Bkgd. Reading	Correc. Reading	% Remain. Activity	% Expected Activ.	% Error

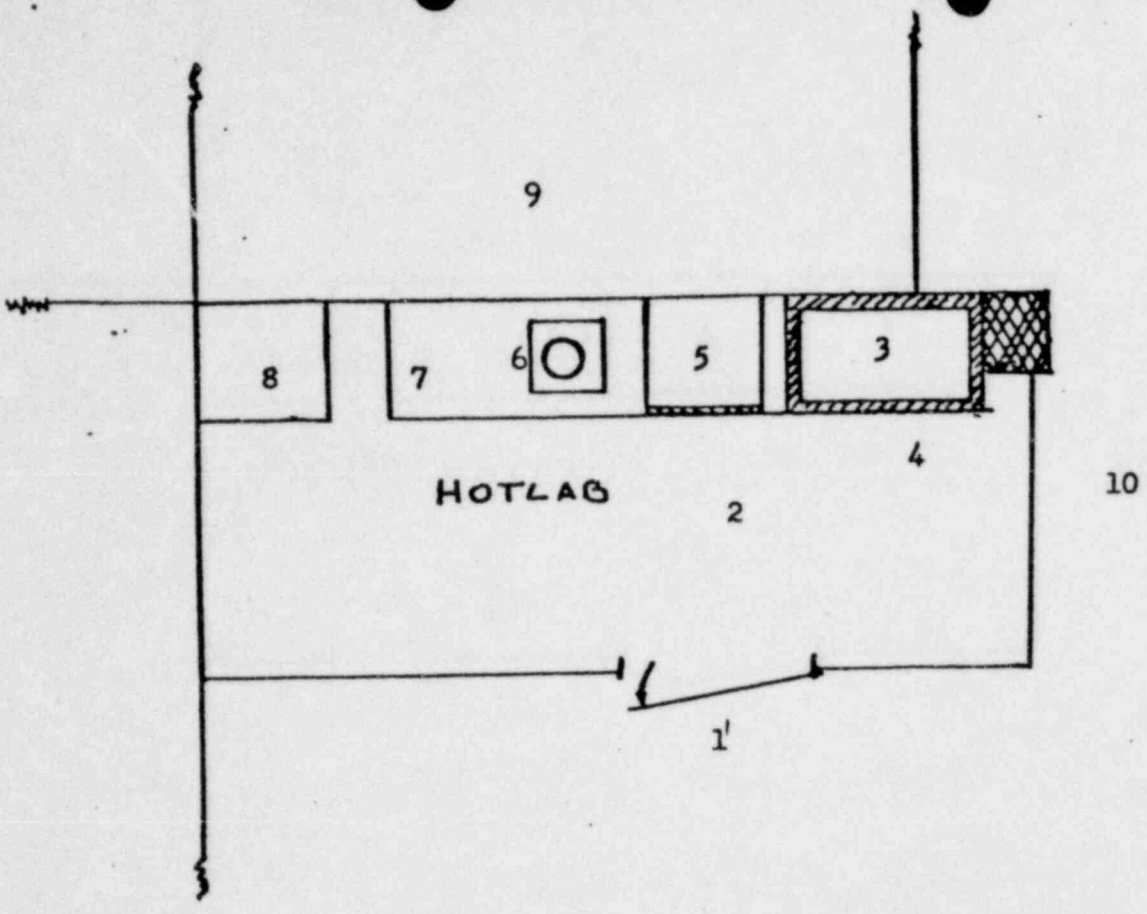


FACILITIES AND EQUIPMENT

See the diagram and survey sheet attached. The following radiation safety equipment is present:

1. Syringe shields
2. Lead syringe holers
3. Disposable rubber gloves
4. Absorbant pads
5. 2" lead brick Fort, 12" high
6. Vials are stored in their lead pigs
7. Lead L-block shield
8. Remote handling tool
9. Lab coats are worn by the technologists
10. Lead shielded radioactive waste cans

PASSIAC GENERAL HOSPITAL
NUCLEAR MEDICINE DEPARTMENT



Scale; $\frac{1}{4}$" = 1'

DATE:	#	LOCATION	mR/hr	CPM/100 cm²
SURVEYED BY:	1	Door/ Floor		
INSTRUMENTATION:	2	Floor		
	3	Lead Fort		
	4	R/A Waste		
	5	L Shield		
	6	Dose Calibrator		
	7	Prep. Area		
Co 57 = cpm/ dpm = eff.	8	Refridgerator		
220 dpm = cpm	9	E/R Stock Rm		
	10	Waiting Area		
	11	Background		

PASSAVANT GENERAL HOSPITAL

Nuclear Medicine Department

Scanning Room

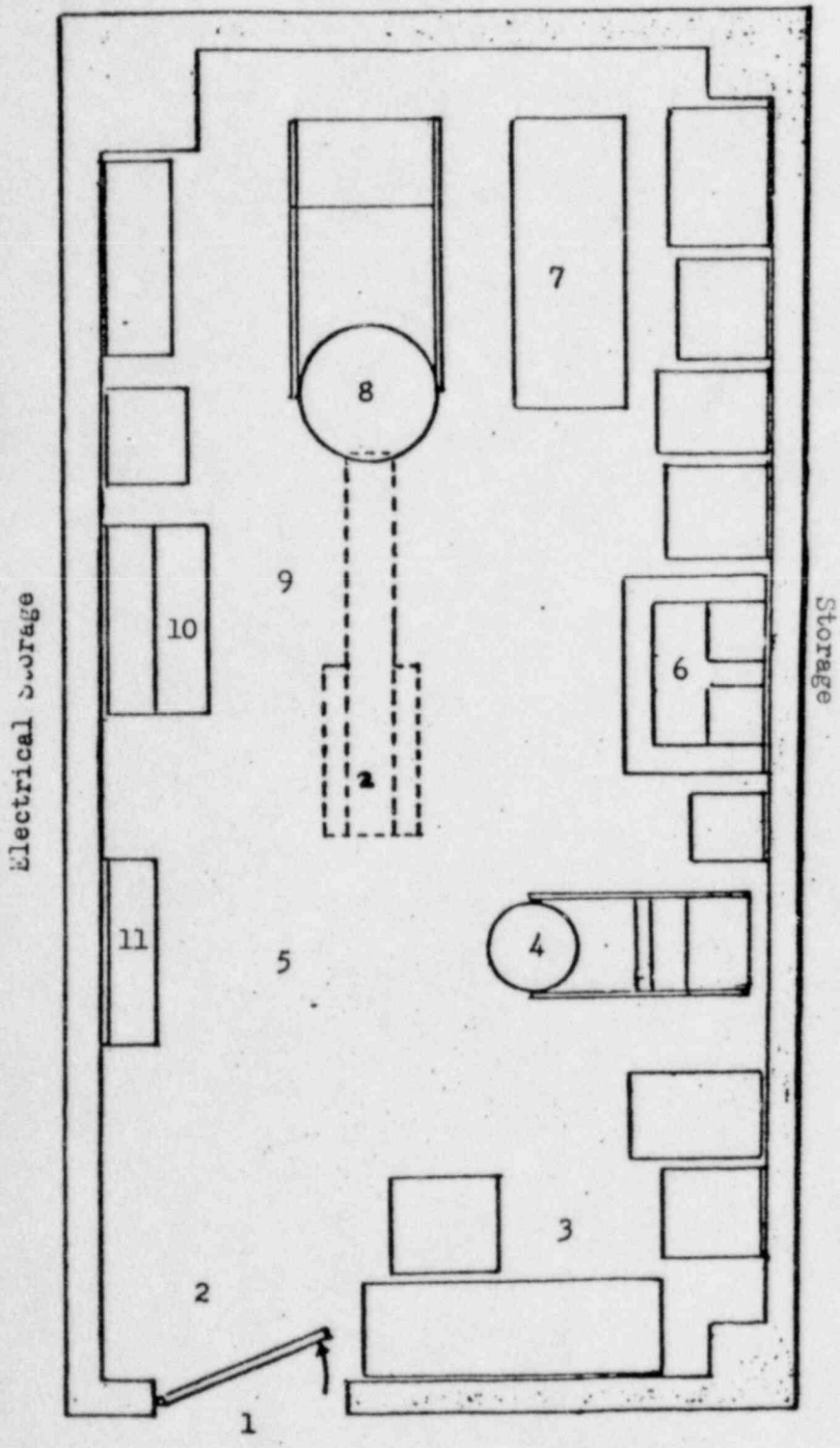
DATE: _____

SURVEYED BY: _____

INSTRUMENTATION: _____

Schwarz-Mann Auto Well Counter, Tc99 Setting

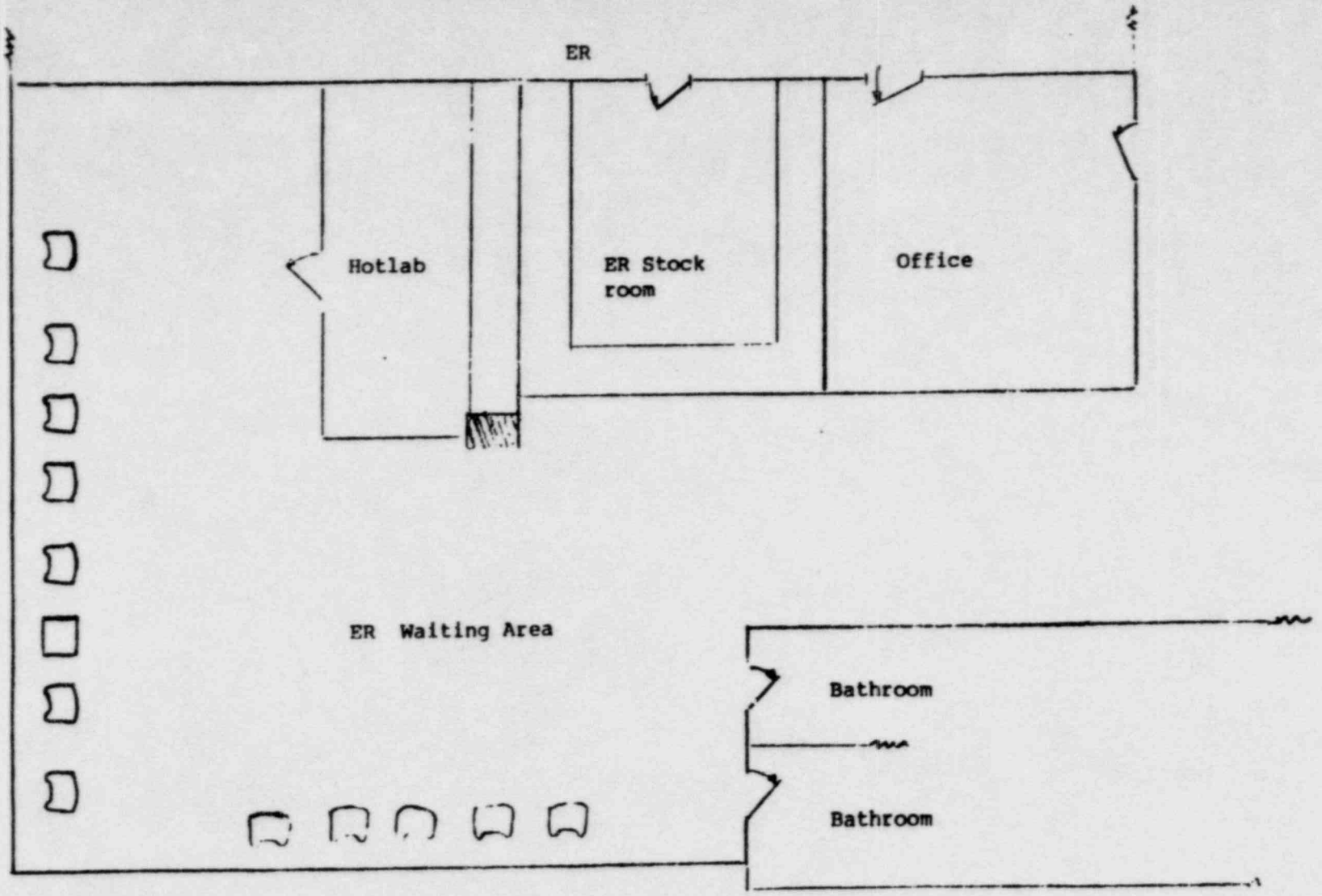
Outside



#	LOCATION	mR/hr	cpm/100
1	Door/Floor		
2	Floor		
3	Injection		
4	Camera		
5	Floor		
6	Console		
7	Table		
8	Camera		
9	Table		
10	Sink		
11	Table		
12	Background		

Notes:

PASSIAC GENERAL HOSPITAL



Scale: 1/4 " = 1'

PERSONNEL TRAINING PROGRAM

In Service Subjects covered in training programs are as follows:

1. Areas of radionuclide storage
2. Potential hazards of radionuclides
3. Radiological safety procedures
4. N.R.C. regulations
5. License commitments
6. 10CFR 19 and right to report unsafe conditions and request an inspection
7. Responding to emergencies safely
8. Right to know radiation exposure and bioassay results-personnel dosimetry
9. Mathematics of decay, units, etc.
10. Radiopharmaceuticals - mechanisms 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
20.

Personnel Categories

	Type	Subjects Covered	Total Duration
A. Physicians	D	4, 5, 19	≥3 hrs/yr.
B. Technologists	L,D,Q	1 - 19	≥12 hrs/yr.
C. Orderlys	D	1,2,3,7,8,17,18	1 hr/yr.
D. Clerical	D	1,2,3,7,8,17,18	1 hr/yr.
E. Nursing	L	1,2,3,7,8,17,18	1 hr/yr.
F. Housekeeping	I,D	1,2,3,7,17	½ hr/yr.
G. Security	I,D	1,2,3,7,17	½ hr/yr.
H.			

Type: Formal Lecture = L Quiz = Q Personal Discussion = D Instruction Sheet = I

Physicians and technologists 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 Housekeeping or Nursing or any other non-occupationally personnel frequenting the Nuclear Medicine Department.

1. Minimize the time you must spend achieving the purpose for which you have come to the department.

2. Do not stand any closer to patients than necessary.

3. Do not enter the hot lab without technical assistance.

4. Read all department policy and requirements regarding food, etc., in the department - follow the regulations.

5. Follow technicians instructions regarding best location for initiating or carrying out your purpose in the department.

6. Do not handle any syringes that you did not bring to the department.

7. Do not dispose of any waste from the room indicated as the "Hot Lab" with the "Caution Radioactive Materials" sign.

8. Do not discard any packages without first checking with technicians.

9. Do not wander aimlessly - to only to those rooms in which you have been told to by department personnel.

10. If you have any questions ask first, then act.

PROCEDURES FOR ORDERING AND RECEIPT OF RADIOACTIVE MATERIALS

A. Ordering

Personnel ordering radioactive materials will order only those and the amounts authorized by their license(s) from a manufacturer/distributor who holds a valid NRC license. The person ordering will have an adequate current knowledge of the department inventory as to prevent exceeding the possession limits. Only personnel authorized to place orders by the Radiation Safety Officer can make requests to manufacturers.

B. Receipt

1. During normal working hours carriers will be instructed to deliver radioactive packages directly to the department designated on the package. If no department is designated, it will be brought to Nuclear Medicine.

2. During off-duty hours security (or reasonable facsimile) personnel, who has been adequately briefed on the hazards (as described in Item 12) will accept delivery and bring the package immediately to the Nuclear Medicine Department. He will unlock the department's hot lab and place the package inside. In the event this is not possible, he will at least lock the package inside the Nuclear Medicine Department proper.

3. The technologist arriving on duty then assumes delivery as described in Item 14.

See instruction sheet for security or other personnel receiving packages attached.

Instruction to Security and other Non-occupationally Exposed Personnel Handling Radioisotope Packages in the Hospital

It has been determined that personnel following these instructions will retain their non-occupational status; however, if it is determined that the volume of service necessitates changing you to occupational status, film badges will be supplied, at least for a 3 month trial basis to justify existence of the necessity.

Instructions:

1. Courier will have security paged to pick-up packages and deliver them to Nuclear Medicine.

2. In general you will minimize your exposure to radioisotopes by maximizing your distance from them (use a remote carrying device as opposed to carrying by hand).

3. The least time you spend doing the job carefully, of course, the less exposure you will have.

4. The packages are adequately shielded so that they will not overexpose you if you carry 10 of them at a distance of 1 yard for 4 hours per month or carry 10 of them in your hands for 10 minutes per month.

5. Any additional lead-shielding surrounding the package will, of course, reduce this exposure.

6. If package looks physically damaged, damp, wet, and is suspected to be leaking, put on disposable rubber gloves, place package in a plastic bag, remove rubber gloves and place them in the bag, secure the bag's top, notify the Radiation Safety Officer listed below immediately, and do not transport package to the Nuclear Medicine Department.

7. If a carrier delivers a damaged or leaking package, instruct carrier to remain for monitoring and decontamination upon arrival of the Radiation Safety Officer.

8. If package integrity is normal, deliver to Nuclear Medicine Department of department of addressee.

9. Unlock hot lab door, place box on floor inside door, relock door, and return to your previous assignment.

Radiation Safety Officer: Arthur S. Weisel,M.D.

Office Phone: 365-4457

Home Phone: 736-9751

INSTRUCTIONS FOR PERSONNEL OPENING AND MONITORING PACKAGES CONTAINING RADIOACTIVE MATERIALS

1. The package once it is received by the Nuclear Medicine Department should be visually inspected for any signs of damage (e.g. wetness, crushed). If damage is noted, immediately notify the Radiation Safety Officer. If package is in acceptable condition, log appropriate identification in package monitoring log book (see attached sample "Package Monitoring Log Sheet").

2. The package shall be monitored as soon as practicable after receipt, but no later than three hours after the package is received during normal working hours, or eighteen hours if received after normal working hours.

3. The technician must wear rubber gloves prior to and during the opening of the package.

4. Before opening the package, the G.M. Survey Meter should be turned on and set on the 0-500 mrem/hour range. All six sides of the package should be monitored at the surface (if necessary reduce range on survey meter to enable a more accurate assessment of exposure rate). The maximum meter reading should be logged in the package monitoring log book. If any reading is in excess of 200 mrem per hour, the package should immediately be placed in the lead storage area, behind the lead and the Radiation Safety Officer notified.

5. An area of not less than 100 cm^2 of external package surface shall be wiped with absorbent paper as specified in 10CFR 20.205 (b)(1). If the wipe is found to remove contamination, the Radiation Safety Officer should be notified. The results of the wipe test shall be logged in the package monitoring log book.

6. If the package is below 200 mrem/hour and exterior surface noncontaminated, the package should be opened carefully and the packing material visually inspected for stains, wetness or any unusual markings. Each source container shall be wipe tested for contamination before handling. If any of these conditions are not met, the package should be placed in the lead cave and the Radiation Safety Officer notified.

7. Once the exterior and packing material of the package has been found to be in order, the vial in the leaded container should be inspected to assure the vial has not broken in shipping. The shielding container should be carefully opened and visual inspection of the vial in the container should be made to assure the vial intactness. Once the vial has been found to be intact, the container and the vial should be stored in its proper place, i.e., the refrigerator or lead storage cave.

8. Verify that the package contents match the written request for the radioactive drug, and the packing slip supplied by the manufacturer. "Log" result of this check.

9. Before discarding, the empty package and packing material shall be monitored with the G.M. Survey Meter to assure they are not contaminated. The radiation labels shall be removed before discarding in the regular trash.

PACKAGE MONITORING LOG SHEET

NUCLIDE	MANUFACTURER	DATE	SURVEYOR	TIME	CONDITION O.K. ✓	RAD. UNITS OF LABEL mR/hr (DOT)	RADIATION LEVELS mR/hr SURFACE	RADIATION LEVELS mR/hr 3' FROM SURFACE*	CONTENTS & SLIP AGREE-YES ✓	WIPE RESULTS OUTSIDE	WIPE RESULTS SURFACE CONTAINERS	SURVEY RESULTS MATERIAL	SURVEY RESULTS CARTON	DISPOSITION OF PACKAGE O.K. ✓

* be omitted where surface readings are less than 10mR/hr. If package is contaminated and/or over 200mR/hr at surface
ık/hr @ 3 feet), notify carrier and local Nuclear Regulatory Commission Office (215) 337-5000.

LABORATORY RULES FOR THE 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, feet, and clothing for contamination after each generator elution and radiopharmaceutical kit preparation, and after each dose preparation/administration or before leaving the area with the GM Survey Meter. Log the meter readings.

4. Use syringe shields for preparation of patient doses and administration to patients except in circumstances, such as pediatric cases, where their use would compromise the patient's well-being.

5. Do not eat, drink, smoke or apply cosmetics in any area where radioactive material is stored or used.

6. 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%.

7. Wear personnel monitoring devices (Film badge or TLD) at all times while in areas where radioactive materials are used or stored. These should be worn at chest or waist level.

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 receptacles. Survey receptacles daily to assure exposure levels are less than 2.0 mR/hr. in restricted areas and less than 0.2 mR/hr. in non-restricted areas.

10. Never pipette by mouth.

11. Survey generator, kit preparation, and dose preparation areas after each procedure or at the end of the day with GM Survey Meter, and log readings. If necessary, reposition sources and/or shielding to maintain exposure levels less than 2.0 mR/hr. Also perform a wipe test for each area listed above and log results. Decontamination procedures are warrented if removable contamination found on any wipeyields a larger than background reading on the GM survey meter with the window open.

12. Confine radioactive solutions in covered containers plainly identified and labelled with name of compound, radionuclide, date, activity, and radiation level if applicable.

13. Always transport radioactive material in shielded containers.

14. Always use disposable coverings (with plastic backing) where radioactive materials in solution are prepared.

15. Always use remote handling tongs when handling or assaying unshielded sources, especially if in quantities greater or equal to patient doses. This is extremely important for the elution of a generator.

EMERGENCY PROCEDURES

Minor Spills:

1. NOTIFY: Notify persons in the area that a spill has occurred.

2. PREVENT THE SPREAD: Cover the spill with absorbent paper.

3. REPORT: Report incident to the Radiation Safety Officer.

4. CLEAN UP: Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Include all other contaminated materials such as disposable gloves.

5. SURVEY: With a G.M. Survey Meter, check the area around the spill, your hands and clothing for contamination. Perform a wipe test to assure the absence of removable contamination before resuming normal operations. Log survey and wipe test results and other related information on the incident for laboratory records.

Major Spills:

1. CLEAR THE AREA: Notify all persons not involved in the spill to vacate the room.

2. PREVENT THE SPREAD: Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.

3. SHIELD THE SOURCE: If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.

4. CLOSE THE ROOM: Leave the room and lock the door(s) to prevent entry.

5. CALL FOR HELP: Notify the Radiation Safety Officer immediately.

6. PERSONNEL DECONTAMINATION:

   a. Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer.

   b. Rinse the affected area promptly with water.

   c. If contamination covers a large area and a shower is warrented, bring the G.M. Survey Meter and have someone survey the contaminated individual to assure that decontamination is effective.

d. Wash thoroughly with a non-abrasive detergent. Lanoclean is recommended. It contains corn meal that has a mild scrubbing action but doesn't scratch the skin.

e. Scrub the area thoroughly using detergent and a suitable brush but being careful not to abrade the skin.

f. Continue these procedures until there is no further reduction in the level of contamination, or until the possibility of damage to the skin makes further scrubbing inadvisable.

g. If the level of fixed contamination is more than 5 mR/hr. on a G.M. monitor or there are special circumstances contact the Radiation Safety Officer.

RADIATION SAFETY OFFICER: Arthur S. Weisel, M.D.

OFFICE PHONE: 365-4457

HOME PHONE: 736-9761

SURVEY PROCEDURES

A. All elution, kit preparation, and dose preparation areas will be surveyed daily with a G.M. survey meter and decontaminated if necessary as specified in Item 15 "Laboratory Rules For the Use of Radioactive Material", Section II.

B. Laboratory areas where only small quantities of radioactive material are used (less than 200 uCi) will be surveyed monthly.

C. All other laboratory areas will be surveyed weekly by the nuclear medicine staff, and monthly by consultant radiation physicist.

D. The weekly and monthly survey will consist of:

1. A measurement of radiation levels with a survey meter sufficiently sensitive to detect 0.1 mR/hr.

2. A series of wipe tests to measure contamination levels. The method for performing wipe tests will be sufficiently sensitive to detect the contamination limits listed in Section F. (Page 2)

E. A permanent record will be kept of all survey results, including negative results. The record will include:

1. Location, date, and identification of equipment used.

2. Name of person conducting the survey.

3. Drawing of area surveyed, identifying relevant features such as active storage areas, active waste areas, etc.

4. Measured exposure rates, keyed to location on drawing (point out rates that require corrective action.).

5. Detected contamination levels, keyed to locations on drawing.

6. Corrective action taken in the case of contamination or excessive exposure rates, reduced contamination levels or exposure rates after corrective action, and any appropriate comments.

F. Ideally, any contamination more than a few dpm above background should be cleaned up; however the following table specifies limits of acceptable levels of contamination for common medical radionuclides:

Type of Surface	I-131, Mo-99, Se-75, P-32	Tc-99m, I-125, Cr-51, Co-57, Ga-67, Tl-201, I-123
	dpm/100 cm^2	dpm/100 cm^2
1. Unrestricted Areas	220	2200
2. Restricted Areas	2200	22000
3. Personal Clothing worn outside restricted areas	220	2200
4. Protective clothing worn only in restricted areas	2200	22000
5. Skin	220	2200

Contamination levels exceeding those listed above warrant establishment of a contamination zone until contamination is removed. For fixed contamination; that which after repeated attempts fails to reduce levels significantly, 5 times the levels listed above in lines 1 and 2 are acceptable without isolation of the area.

Exact contamination on a wipe can be quantized if a NaI well crystal is possessed. Where no NaI well crystal exists the following instrumentation will be employed to assess contamination:

In performing monthly department surveys the consultant radiation physicist estimates the dpm content of a wipe employing a ~1000 dpm Co-57 reference source and the NaI crystal detector contained in the Rectilinear Scanner, Thyroid Uptake Probe, or Gamma Camera.

In daily and weekly surveys the nuclear medicine staff assesses the removable contamination extent contained in a wipe by employing a G.M. Survey Meter (with the beta shield removed). Wipes are counted in a low background area, bringing the detector window as close as possible to the wipe. Each wipe will be counted for a minimum of 15 seconds allowing 15 seconds between counts for the meter to equilibrate. A wipe that registers a reading that is larger than background levels will warrant decontamination procedures.

APPENDIX J

WASTE DISPOSAL

Note: In view of the recent problems with shallow-land burial sites used by commercial waste disposal firms, NRC is encouraging its licensees to reduce the volume of wastes sent to these facilities. Important steps in volume reduction are to segregate radioactive from nonradioactive waste, to hold short-lived radioactive waste for decay in storage, and to release certain materials in the sanitary sewer in accordance with §20.303 of 10 CFR Part 20.

1. Liquid waste will be disposed of (check as appropriate)

__X__ In the sanitary sewer system in accordance with §20.303 of 10 CFR Part 20.

_____ By commercial waste disposal service (see also Item 4 below).

__X__ Other (specify): DECAY TO BACKGROUND

_____

2. Mo-99/Tc-99m generators will be (check as appropriate)

__X__ Returned to the manufacturer for disposal.

_____ Held for decay* until radiation levels, as measured in a low background area with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and the generators will be disposed of as normal trash.**

_____ Disposed of by commercial waste disposal service (see also Item 4 below).

_____ Other (specify): _____

_____

3. Other solid waste will be (check as appropriate)

__X__ Held for decay* until radiation levels, as measured in a low background area with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and the waste will be disposed of in normal trash.

_____ Disposed of by commercial waste disposal service (see also Item 4 below).

_____ Other (specify): _____

_____

4. The commercial waste disposal service used will be

NONE

(Name) (City, State)

NRC/Agreement State License No. _____

*Be sure that waste storage areas were described in Item 11 and that they are surveyed periodically (Item 17).

**These generators may contain long-lived radioisotopic contaminants. Therefore, the generator columns will be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.

PROCEDURES FOR USE OF GROUP IV RADIOPHARMACEUTICALS
FOR TREATMENT OF PATIENTS

1. All in-patients undergoing internal nuclear medicine therapy will be placed in a private room with a toilet.

2. The patient's room will be properly posted in accordance with Section 20.203, 10 CFR Part 20.

3. The form, Nursing Instructions for Patients Treated with Phosphorous-32 or Iodine-131, will be completed immediately after administration of the treatment dose. A copy will be posted in the patient's chart.

4. Radiation levels in unrestricted areas will be maintained less than the limits specified in Section 20.105(b), 10 CFR Part 20.

5. All linens will be surveyed for contamination before being removed from the patient's room and will, if necessary, be held for decay.

6. Disposable plates, cups, eating utensils, tissue, surgical dressings, and other similar waste items will be placed in a specially designated container. The material will be collected daily by the Radiation Safety Officer (or his designate) checked for contamination, and disposed of as normal or radioactive waste, as appropriate.

7. Non-disposable items used for these patients will be held in plastic bags in the patient's room, and checked for contamination by the Radiation Safety Officer or his designate. Items may be returned for normal use, held for decay or decontaminated, as appropriate.

8. Urine and vomitus, from Iodine-131 therapy patients will be disposed in compliance with Section 20.303, 10 CFR Part 20.

9. Before a therapy patient's room is reassigned to another patient, the room will be surveyed for contamination (and decontaminated if necessary) and all radioactive waste and waste containers will be removed.

10. Nursing Instructions

a. Nurses should spend only that amount of time near the patient required for ordinary nursing care. Special restrictions may be noted on the precaution sheet in the patient's chart. Nurses should read these instructions before administering to the patients. Call the Nuclear Medicine Department if you have any questions about the care of these patients.

b. Visitors will be limited to those 18 years of age or over, unless other instructions are noted on the precautions sheet in the patient's chart.

c. Patients must remain in bed while visitors are in the room and visitors should remain at least three feet from the patient.

d. Radioactive patients are to be confined to their rooms except for special medical or nursing purposes approved by the Nuclear Medicine Department.

e. No nurse, visitor or attendant who is pregnant should be permitted in the room of a patient who has received a therapeutic amount of radioactivity until the patient no longer presents a radiation hazard. Female visitors should be asked whether they are pregnant.

f. Attending personnel must wear rubber or disposable plastic gloves when handling urinals, bedpans, emesis basins or other containers having any material obtained from the body of the patient. Wash gloves before removing and then wash hands. The gloves must be left in the patient's room in the designated waste container. These gloves need not be sterile or surgical in type.

g. Disposable items should be used in the care of these patients, whenever possible. These items should be placed in the designated waste container. Contact the Nuclear Medicine Department for proper disposal of the contents of the designated waste container.

h. All clothes and bed linens used by the patient should be placed in the laundry bag provided and left in thepatient's room to be checked by a member of the Nuclear Medicine Department.

i. All non-disposable items should be placed in a plastic bag and left in the patient's room to be checked by a member of the Nuclear Medicine Department.

j. For Iodine-131 patients:

(1) The urinal or bedpan should be flushed several times with hot soapy water after use. A separate bedpan or urinal should be kept for the patient until he/she is discharged.

(2) If the nurse helps to collect the excreta, she should wear disposable gloves. Afterwards she should wash her hands with the gloves on and again after the gloves are removed. The gloves should be placed in the designated waste container for disposal by the Nuclear Medicine Department.

(3) Disposable plates, cups, and eating utensils will be used by patients who are treated with Iodine-131.

(4) Vomiting within 24 hours after oral administration, urinary incontinence, or excessive sweating within the first 48 hours may result in contamination of linen and/or floor. In any such situation or if radioactive urine and/or feces is spilled during collection, call the Nuclear Medicine Department, Ext. 4453. Meanwhile, handle all contaminated material with disposable gloves and avoid spreading contamination.

(5) The same toilet should be used by the patient at all times and it should be well flushed (3 times).

k. If a nurse, attendant or anyone else knows or suspects that his skin, or clothing, including shoes, is contaminated, notify the Nuclear Medicine Department immediately. This person should remain in the patient's room and not walk about the hospital. If the hands become contaminated, wash immediately with soap and water.

l. If a therapy patient should need emergency surgery or should die, notify the Nuclear Medicine Department immediately.

m. When the patient is discharged call the Nuclear Medicine Department and request that the room be surveyed for contamination before remaking the room.

n. No patient shall be released from the hospital until his/her radioactivity content has reduced such that a dose to other persons in excess of 0.5 rem will not be absorbed.

PASSIAC GENERAL HOSPITAL
RADIATION PROTECTION PROGRAM

Passiac General Hospital is committed to the NRC A.L.A.R.A. program as described in the NRC Regulatory Guide 10.8 (Revision 1, Oct. 1980) for implementing its radiation protection program.