

FORM NRC-313M (8-78) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION <b>APPLICATION FOR MATERIALS LICENSE – MEDICAL</b>	Approved: GAO R0557
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**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.

<b>1.a. NAME AND MAILING ADDRESS OF APPLICANT</b> (institution, firm, clinic, physician, etc.) INCLUDE ZIP CODE  Madison General Hospital 202 S. Park Street Madison, WI 53715  TELEPHONE NO.: AREA CODE (608) <u>267 - 6090</u>	<b>1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED</b> (If different from 1.a.) INCLUDE ZIP CODE  SAME
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<b>2. PERSON TO CONTACT REGARDING THIS APPLICATION</b>  John S. Edwards, M.D.  TELEPHONE NO.: AREA CODE (608) <u>267 - 6090</u>	<b>3. THIS IS AN APPLICATION FOR:</b> (Check appropriate item) a. <input type="checkbox"/> NEW LICENSE b. <input type="checkbox"/> AMENDMENT TO LICENSE NO. _____ c. <input checked="" type="checkbox"/> RENEWAL OF LICENSE NO. <u>48-00395-02</u>
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<b>4. INDIVIDUAL USERS</b> (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.)	<b>5. RADIATION SAFETY OFFICER (RSO)</b> (Name of person designated as radiation safety officer. If other than individual user, complete resume of training and experience as in Supplement A.)  John S. Edwards, M.D. Director Nuclear Radiology
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6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE					
RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES	X	3 mci	IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM	X	100
10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED	PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES	X	30
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED	PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.	X	25
10 CFR 35.100, SCHEDULE A, GROUP III	X	2000 mci	GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.	X	300
10 CFR 35.100, SCHEDULE A, GROUP IV	X	AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA	X	200
10 CFR 35.100, SCHEDULE A, GROUP V	X	AS NEEDED	XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.	X	500
10 CFR 35.100, SCHEDULE A, GROUP VI					

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
Americium 241	Foil Amersham/ Searle Model AMC-24	14	Anatomical marker
B506100131 B50520 REG3 LIC30 48-00395-02 PDR			

# 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. \_\_\_\_\_ Date: \_\_\_\_\_

7. MEDICAL ISOTOPES COMMITTEE		Dr. Edwards	15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL (Check One)	
	Names and Specialties Attached; and	Dr. Shih Robert Coats		Appendix G Rules Followed; or
X	Duties as in Appendix B; or		X	Equivalent Rules Attached
	(Check One)			
	Equivalent Duties Attached		16. EMERGENCY PROCEDURES (Check One)	
8. TRAINING AND EXPERIENCE			X	Appendix H Procedures Followed; or
X	Supplements A & B Attached for Each Individual User; and Lic. # 48-00395-02			Equivalent Procedures Attached
	Supplement A Attached for RSO.		17. AREA SURVEY PROCEDURES (Check One)	
9. INSTRUMENTATION (Check One)				Appendix I Procedures Followed; or
	Appendix C Form Attached; or		X	Equivalent Procedures Attached
X	List by Name and Model Number		18. WASTE DISPOSAL (Check One)	
10. CALIBRATION OF INSTRUMENTS				Appendix J Form Attached; or
	Appendix D Procedures Followed for Survey Instruments; or	(Check One)	X	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			Detailed Information Attached; and
12. PERSONNEL TRAINING PROGRAM				Appendix L Procedures Followed; or
X	Description of Training Attached			NOT APPLICABLE (Check One)
				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		X	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	
	Appendix F Procedures Followed; or			Detailed Information Attached
X	Equivalent Procedures Attached			NOT APPLICABLE
			23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
				NOT APPLICABLE
				Detailed Information Attached

## 24. PERSONNEL MONITORING DEVICES

	TYPE <small>(Check appropriate box)</small>	SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	<input checked="" type="checkbox"/> FILM	R. S. Landauer, Jr. & Co.	Monthly
	<input type="checkbox"/> TLD		
	<input type="checkbox"/> OTHER <i>(Specify)</i>		
b. FINGER	<input type="checkbox"/> FILM		
	<input checked="" type="checkbox"/> TLD	R. S. Landauer, Jr. & Co.	Monthly
	<input type="checkbox"/> OTHER <i>(Specify)</i>		
c. WRIST	<input type="checkbox"/> FILM		
	<input type="checkbox"/> TLD		
	<input type="checkbox"/> OTHER <i>(Specify)</i>		

d. OTHER *(Specify)*

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL			
NAME OF HOSPITAL		b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.	
MAILING ADDRESS		c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.	
CITY	STATE	ZIP CODE	

## 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 <i>(See Section 170.31, 10 CFR 170)</i>	b. APPLICANT OR CERTIFYING OFFICIAL <i>(Signature)</i>
	(1) NAME <i>(Type of Print)</i>
(1) LICENSE FEE CATEGORY:	(2) TITLE
(2) LICENSE FEE ENCLOSED: \$	c. DATE

JUN 4 1979

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on Form NRC-313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.
5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.



(8-78)

# TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER		2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES				
FIELD OF TRAINING A	LOCATION AND DATE(S) OF TRAINING B	TYPE AND LENGTH OF TRAINING		
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D	
a. RADIATION PHYSICS AND INSTRUMENTATION				
b. RADIATION PROTECTION				
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY				
d. RADIATION BIOLOGY				
e. RADIOPHARMACEUTICAL CHEMISTRY				
5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE

# PRECEPTOR STATEMENT

Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.

1. APPLICANT PHYSICIAN'S NAME AND ADDRESS		<b>KEY TO COLUMN C</b> <b>PERSONAL PARTICIPATION SHOULD CONSIST OF:</b> 1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage. 2-Collaboration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data. 3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.
FULL NAME		
STREET ADDRESS		
CITY	STATE      ZIP CODE	

## 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING		
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			

# PRECEPTOR STATEMENT (Continued)

## 2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	TREATMENT OF HYPERTHYROIDISM		
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELE THERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR		
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other			

## 3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:		6. PRECEPTOR'S SIGNATURE	
a. NAME OF SUPERVISOR		7. PRECEPTOR'S NAME (Please type or print)	
b. NAME OF INSTITUTION			
c. MAILING ADDRESS			
d. CITY		8. DATE	
5. MATERIALS LICENSE NUMBER(S)			

# RADIOISOTOPE USAGE, DEPARTMENT OF RADIOLOGY

1. Areas where radioisotopes are being utilized:
  - 1) Radioisotope Dept. - 3 Tower
  - 2) New Lab - Special Chemistry
  - 3) Dr. Ehrlich - Endocrine Research Lab

## 2. Type of Activity

### RADIOISOTOPES

<u>Test</u>	<u>Radioisotope being employed</u>	<u>Dosage</u>
Brain Scan	TC99M	15 mci
Cerebral Flow	same	20 mci
Cisternography	IN <sup>111</sup> DTPA	0.5 mci
Thyroid Scan	Tc99m	4 mci
Thyroid Uptake	I <sup>131</sup>	5-10 uci
Thyroid Therapy	I <sup>131</sup>	different for each pt.
Lung Scan	Tc <sup>99m</sup> Pulmolite	4 mci
Liver Scan	TC <sup>99m</sup> Sulfur Colloid	6 mci
Spleen Scan	same as liver	same as liver
Renal Scan	Tc <sup>99m</sup> DTPA	3 mci
Renogram	Hippuran	according to body weight
Bone Scan	Tc <sup>99m</sup> Osteolite	15 mci
Pancreas	Se <sup>75</sup>	250 uci
Ventilation	Xe <sup>133</sup>	10 mci

### NEW LAB - SPECIAL CHEMISTRY

Blood Vol.	I <sup>125</sup> Human Serum Albumin	2.5 uci or under
Digoxin	I <sup>125</sup>	
RIA-HAA	I <sup>125</sup>	
Iron	Fe <sup>59</sup>	
B-12 Absorption	Co <sup>57</sup>	Less than 0.05 uci
Thyroid T <sub>3</sub>	I <sup>125</sup>	0.01 uci or under
Thyroid T <sub>4</sub>	I <sup>125</sup>	0.05 uci or under
Cortisol	I <sup>125</sup>	
Folic Acid	I <sup>125</sup>	



NEW LAB - SPECIAL CHEMISTRY CONT.

<u>Test</u>	<u>Radioisotope being employed</u>	<u>Dosage</u>
Estriol	I <sup>125</sup>	
Thyroid - Stim. Hormone	I <sup>125</sup>	
CEA	I <sup>125</sup>	
Insulin	I <sup>125</sup>	

ENDOCRINE RESEARCH LAB

Plasma Steroid Levels	<sup>3</sup> H	Less than 1 uci
Tissue Binding Assays		

3. Usual amount of each material on hand - Beta & Gamma Emitters.

Every Week	200 mci Generator of TC <sup>99m</sup>	
Monthly	I <sup>131</sup> caps	<u>2 mci total</u> 10 of 100 uci 10 of 50 uci 10 of 25 uci 10 of 15 uci

Ordered as needed:

Co <sup>57</sup> caps	1 uci	
I <sup>121</sup> Human Serum Albumin	10 uci each	10 Syringes
I <sup>125</sup>	5-10 test kits of each	
	T <sub>3</sub> 0.01 uci or under per test	
	T <sub>4</sub> 0.05 uci or under per test	
Fe <sup>59</sup>	15 uci	
In <sup>111</sup> DTPA	1.5 mci	
I <sup>131</sup> Therapeutic	different for each patient	
I <sup>131</sup> Hippuran	250 mci	
Se <sup>75</sup>	250 uci	
Xe <sup>133</sup>	10 mci Gas	

1. Areas where radioisotopes are being utilized
  - a. Radioisotope Department
  - b. Dr. Ehrlich's lab - Endocrine Research Lab
  - c. OB-GYN Research - University license, NRC 48-9843-18
  - d. New Lab - Special Chemistry
2. License under which the activity is being conducted
 

U.S. Atomic Energy Commission  
By Product License Number 48-12832-01
3. Type of activity in Radioisotope Department (3 Tower)
  - a. Test or research being employed
    1. Bone Scan
    2. Thyroid Uptake and Scan
    3. Brain Scan and Cerebral Flow
    4. Liver and Spleen Scan
    5. Lung Scan
    6. Ventilation Scan
    7. Cisternography
    8. Renograms
    9. Pancreas
    10. Thyroid Therapy ( $I^{131}$ )
    11. P 32 Therapy
    12. Transmission-Emission Scan
    13. Pericardial Effusion
    14. Gallium Scan
    15. Blood Pool
    16. Renal Scan
  - b. Radioisotope being employed
    1.  $^{99m}\text{Tc}$  (Sulfur Colloid; Polyphosphate; Microspheres; DTPA: Sodium Pertechnetate; Osteolite Medronate Sodium; Pulmolite MAA).
    2.  $^{133}\text{Xe}$
    3.  $^{111}\text{In}$  DTPA
    4.  $^{131}\text{I}$  (Sodium Iodide; Hippuran)
    5.  $\text{P}^{32}$
    6.  $\text{Yb}^{169}$  DTPA
    7.  $\text{Ga}^{67}$
    8.  $\text{Co}^{57}$  - Flood Source & markers only
    9.  $\text{Se}^{75}$
  - c. Dosage schedules
    1. Bone Scan 15 mci  $^{99m}\text{Tc}$  Osteolite (Medronate Sodium)
    2. Thyroid Uptake 5-10 uci  $^{131}\text{I}$
    3. Thyroid Scan 4 mci  $^{99m}\text{Tc}$ ; 25-100 uci  $^{131}\text{I}$ ; post thyroidectomy for Ca - 1-2 mci  $I^{131}$
    4. a) Cerebral Flow 20 mci-adult  
b) Brain Scan 15 mci-adult 0-5 yrs.-150 uci/lb. body wt.  
5-18 yrs.-100 uci/lb. body wt.
    5. Liver and Spleen Scan 6 mci  $^{99m}\text{Tc}$  Sulfur Colloid
    6. Lung Scan 4 mci  $^{99m}\text{Tc}$  Pulmolite MAA
    7. Ventilation Scan 10 mci  $^{133}\text{Xe}$  Gas
    8. Renograms 3.0 uci/kg body weight  $^{131}\text{I}$  Hippuran
    9. Cisternography 0.5 mci  $^{111}\text{In}$  DTPA or 1 mci  $\text{Yb}^{169}$  DTPA
    10. Pancreas 250 uci  $\text{Se}^{75}$
    11. Thyroid Therapy a) Hyperthyroidism 4-12 mci  $^{131}\text{I}$   
b) Thyroid Ca 30-100 mci  $^{131}\text{I}$
    12.  $\text{P}^{32}$  Therapy 6-8 mci  $^{32}\text{P}$  (Chronic Phosphate)

13. Pericardial Effusion 10 mci 99m Tc Sodium Pertechnetate
14. Blood Pool 1-8 mci 99m Tc Sodium Pertechnetate
15. Renal Scan 3 mci 99m Tc DTPA
16. Ga<sup>67</sup> 3.5 mci

4. Usual amount of each material on hand - RADIOISOTOPES

- a) 200 mci 99m Tc Generator (Fission)
- b) 2 mci 131 I (Sodium Iodide Capsules)
- c) 10 mci 133 Xe Gas (Ordered as needed)
- d) 1.5 mci 111 In DTPA (Ordered as needed)
- e) 0.5 mci 131 I Hippuran (Ordered as needed)
- f) 2.5 mci Yb<sup>169</sup> (Ordered as needed)
- g) 3.5 mci Ga<sup>67</sup> (Ordered as needed)
- h) I<sup>131</sup> Therapeutic (Ordered as needed)

NEW LAB

- a) Digoxin I<sup>125</sup> Less than 20 uci
- b) T<sub>3</sub> Uptake I<sup>125</sup> Less than 30 uci
- c) T<sub>4</sub> I<sup>125</sup> Less than 50 uci
- d) Cortisol I<sup>125</sup> Less than 6 uci
- e) B<sub>12</sub> Co<sup>57</sup> Less than 1 uci
- f) Folic Acid I<sup>125</sup> Less than 10 uci
- g) Estriol I<sup>125</sup> Less than 25 uci
- h) Blood volume I<sup>125</sup> Less than 12.5 uci
- i) TSH I<sup>125</sup> Less than 10 uci
- j) CEA I<sup>125</sup> Less than 10 uci
- k) Insulin I<sup>125</sup> Less than 2 uci
- l) HAA I<sup>125</sup> Less than 1.5 uci

ENDOCRINE RESEARCH LAB

- a) 1-2 mci <sup>3</sup>H Usually on hand

5. Source of Radionuclide

- a) Mallinckrodt: 131 I Sodium Iodide and Hippuran
- b) Medi + Physics: 133 Xe Gas; 111 In DTPA
- c) 3-M Brand: Yb<sup>169</sup> DTPA
- d) NEN: Tc<sup>99m</sup> Generator-Ostoeelite-Pulmolite
- e) Squibb: Sulfur Colloid kits.

6. Radiation Monitoring Procedures

- a) G.M. Monitoring once a week
- b) Wipe test once a month

7. Disposal Procedures:

NUCLEAR MEDICINE

- Taken to appropriate area - a) to roof KOW - 6 mo.  
b) to cobalt room All others until 0.2 MR/hr

NEW LAB

- 1) Solid - Placed in isolation bags and incinerated at 0.003 MR/hr per bag.
- 2) Liquid - Poured down the sink with plenty of H<sub>2</sub>O - about 3000 uci/day.

ENDOCRINE RESEARCH LAB

Waste placed in covered basket labeled radioactive and disposed of by housekeeping.

4. Source of radionuclide

Medi + Physics	Schwarz & Mann	Bio Rad Labs
Ames	Curtis Nuclear	Clinical Assays
Abbot	NEN	Amersham-Searle
Mallincrodt	Becton-Dickinson	Roche Diagnostics
Squibb	Nuclear Medical Labs	Corning Medical

5. Monitoring Procedures.

Wipe tests - monthly  
GM Tube Survey - weekly

6. NRC License Number: 48-00395-02



MADISON GENERAL HOSPITAL

Medical Isotope Committee

1. Dr. John Edwards, Radiologist, Director of Nuclear Radiology
2. Dr. Samuel Shih, Pathologist, Director of Laboratory
3. Mr. Robert Coats, Administrator
4. Karen Andrusco, R.T.N., Supervisor of Nuclear Radiology

## RADIATION DETECTION INSTRUMENTS

<u>Type of Instruments</u>	<u>Number Available</u>	<u>Radiation Detected</u>	<u>Sensitivity Range</u>	<u>Window Thickness</u>	<u>Use</u>	<u>Location</u>
Pho-Gamma Camera Searle - Mo. No. 80030	1	Gamma	80 Kev- 511 Kev	11" by 1" Sodium Iodide (Thallium Activated)	Imaging	Radioisotope Department
Pho-Dot Scanner Searle - Mo. No. 811660	1	Gamma	15 Kev- 750 Kev	3" by 2" Sodium Iodide (Thallium Activated)	Imaging & Uptakes (Not using)	Storage
G-M Monitor Model 6B Lionel Electronic Lab	1	Gamma & Beta	0-50 MR/hr of radium equivalent radiation		Monitoring & Surveying	Radioisotope Department
Laboratory Monitor Picker Mo. No. 624081	1	Gamma & Beta	50 MV	1½"D x 1" crystal	Monitoring	Radioisotope Department
Radx Dose Calibrator 3125 - 70 - P <sub>2</sub> GC	1	Gamma	0-1,000 mci		Measuring	Radioisotope Department
Packard 3002 Dual Channel	1	Gamma		1/8"	Measuring	New Lab
Searle 8725 Well Counter	1	Gamma		1/8"	Measuring (Not using)	Storage
G-M Monitor Nucleus Model L	1	Gamma & Beta			Monitoring	Radioisotope Department
Scintillation Well Counter (Picker) 2804 E	1	Gamma	25 Kev- 2.5 Mev	2 "D x 2"	Measuring (Not using)	Storage



## CALIBRATION PROCEDURE FOR PHO-GAMMA III CAMERA

### DAILY

1. Calibrate the spectrometer window - record settings.

### WEEKLY

1. Perform field flood.
2. Check image resolution, linearity and size with line settings.
3. Record CRT intensity control settings that result in dots just visible on scope (use 1 mci  $\text{Co}^{57}$  sheet source).

Compare above results with previous settings.

## CALIBRATION PROCEDURE FOR LFOU PHO-GAMMA CAMERA

### DAILY

1. Calibrate the spectrometer window - record settings.
2. Perform field flood - Tc 99m 250 uci.

### WEEKLY

1. Perform field flood.
2. Check image resolution, linearity and size with line phantom.
3. Record CRT intensity control settings.

## CALIBRATION PROCEDURE FOR PICKER SPECTROSCALER

### DAILY

1. Take a three minute background count and record. If significant change, check room for contamination and check E-dial calibration. If there is no change in background count, proceed to step 2.
2. Take a three minute count of I131 standard and record. Compare results with previous count allowing for decay.
3. Proceed with patient examination.

### WEEKLY

1. Perform E-dial calibration and record. If there is a marked change from previous calibration, have unit checked for malfunction.



## CALIBRATION PROCEDURE FOR RADX DOSE CALIBRATOR

### DAILY

1. Check activity reading with cesium source on:
  - a. 0 - 1000 uci
  - b. 1 - 10 mci
  - c. 10 - 100 mci
  - d. 100 - 1000 mci

Compare results with previous readings.

### YEARLY

1. Send dose calibrator to Radx for calibration.

### SURVEY METERS AND MONITORS

Survey meters and monitors are battery checked with each use and sent to Instrument Calibration Center, 5213 West Lawrence Avenue, Chicago, IL for yearly calibration.

1. <sup>99m</sup>Tc Generator & Cesium Standard

2. Lead Bricks

3. Sink

4. Hot Plate

5. "L" Shield

6. Hot Lab

7. Dose Calibrator

8. Hall

9. Sink

10. Storage "Cold"

11. Hall

12. }  
13. } Office  
14. } Area

15. Cart

16. Pho-Gamma III

17. Council for Pho Gamma III

18. Pho-Gamma ID Room

19. LFOV Camera Room

20. Collimators

21. LFOV

22. Total Body table

23. LFOV Council

24. Picker probe Room

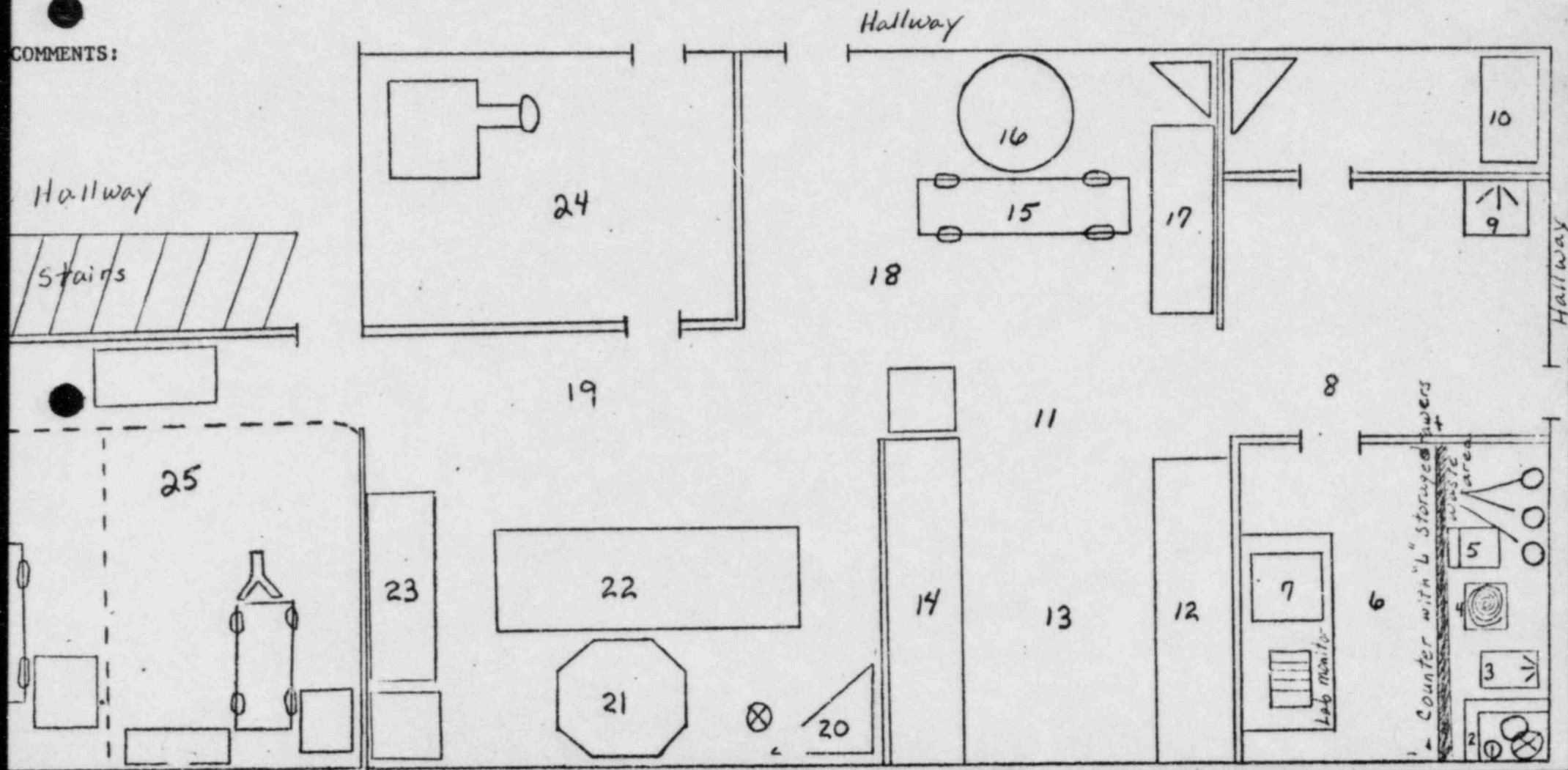
25. Ultrasound

⊗ Exhaust Vents

○ Waste areas

Exhaust Vents - 500 CFM

COMMENTS:





**BEILING ENGINEERING CONSULTANTS**  
**PROFESSIONAL ENGINEERS**

MOLINE, ILL. PEORIA, ILL. CHICAGO, ILL. JOLIET, ILL. CHICAGO, ILL.  
MILWAUKEE, WIS. ST. LOUIS, MO. CEDAR RAPIDS, IOWA BURLINGTON, IOWA BETTENDORF, IOWA

JOB NO. WSM 5747-3  
SHEET NO. 1 OF 2 SHEETS

PROJECT  
MGN Tower (Special Ex. System)

DATE 4-21-71

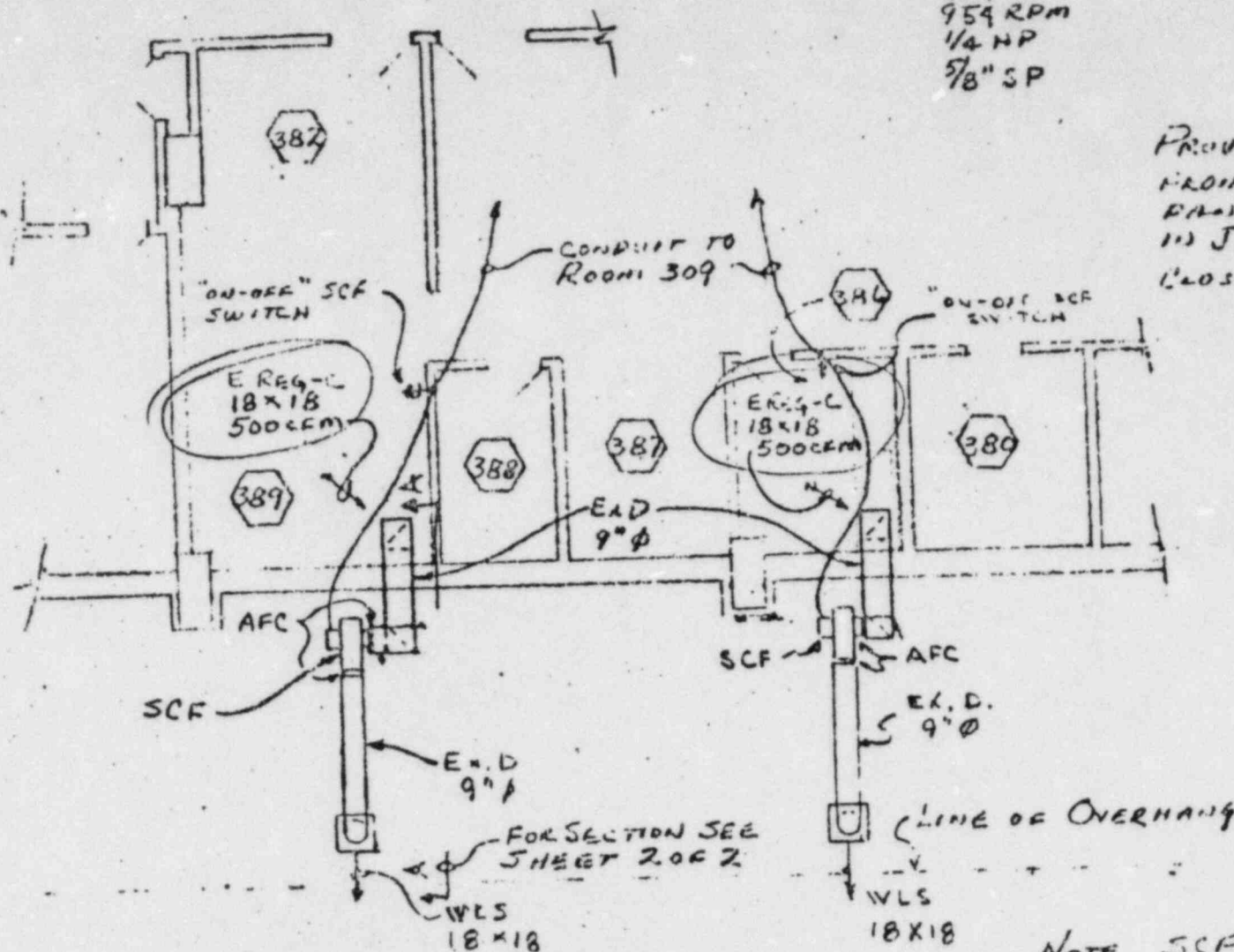
DATE

CHECK'D BY

NOTE: ... ENT EXHAUST REQ.  
IN RMs 389 & 386

SCF  
TRANE No. 9 FC  
APP. TH  
514 CFM  
954 RPM  
1/4 HP  
5/8" SP

PROVIDE CIRCUIT  
FROM SPACE IN  
PANEL LOCATED  
IN JANITOR'S  
CLOSET 309



SCF TO BE HUNG FROM STRUCTURE  
ABOVE WITH 3/8 STEEL RODS  
AND SUSPENSION TYPE SPRING  
VIBRATION ISOLATORS

NOTE SCF TO HAVE  
ACID RESISTANT  
PAINT.  
EAD TO BE  
PVC PIPE.  
REG & WLS TO  
BE STAINLESS  
STEEL.

Endocrine Research Lab

Instruments

No survey meters or diagnostic instruments

Tri-Carb scintillation spectrometer - Packard Model 3330

Radiochromatogram scanner - Packard Model 7201

Maintenance contract with Packard Instruments - checked at least annually

Research Tests Performed

Plasma steroid levels measured by radioimmunoassay

Tissue binding assays for measurement of steroid receptors

Radioisotope used and source

Tritium, from New England Nuclear

Usual amount of material on hand

1-2 mCi  $^3\text{H}$

Less than 1 uCi used at any one time for assays performed

Survey procedures

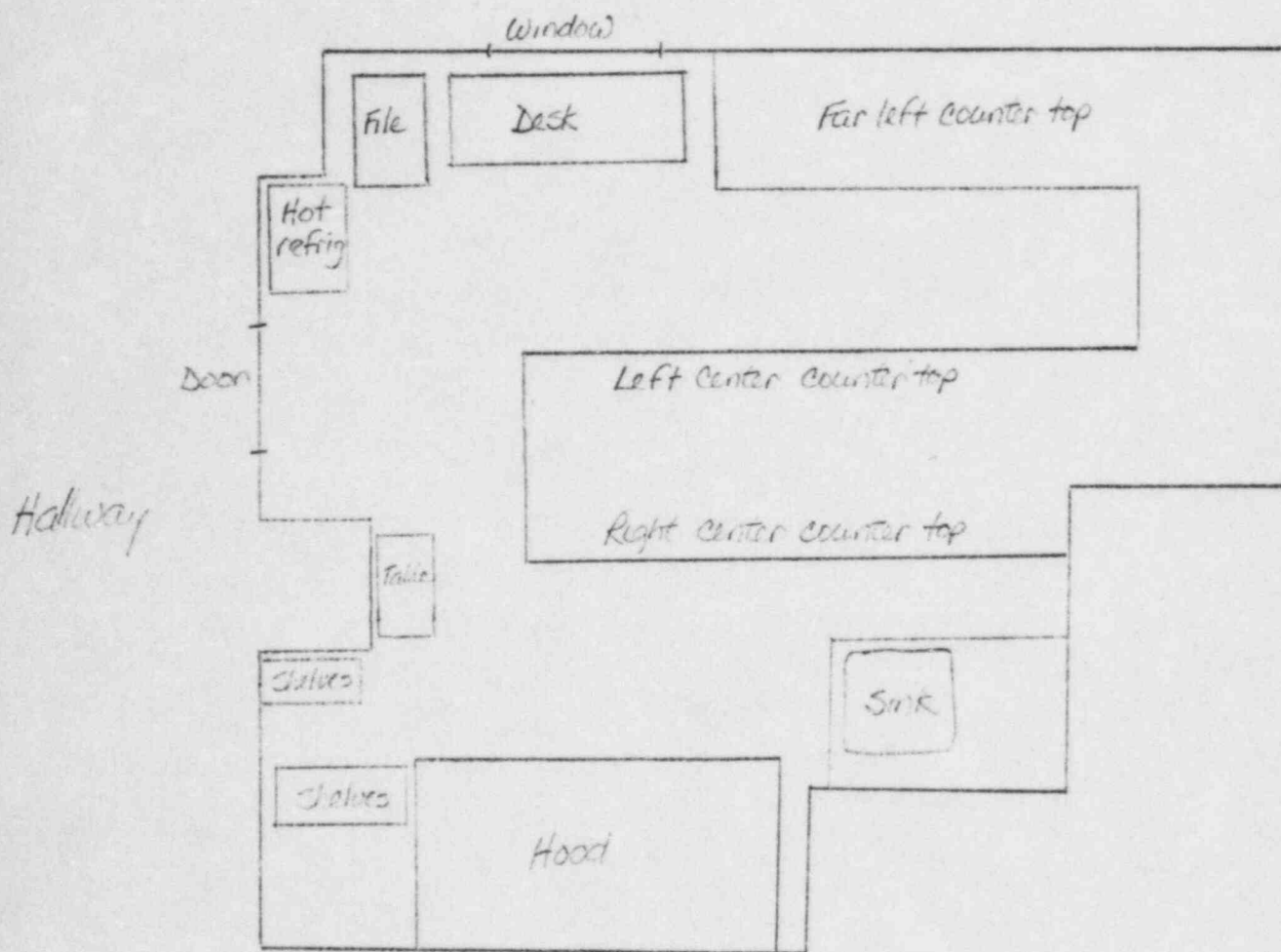
Monthly wipe test

Disposal

Waste placed in covered basket labelled radioactive and disposed of by housekeeping.

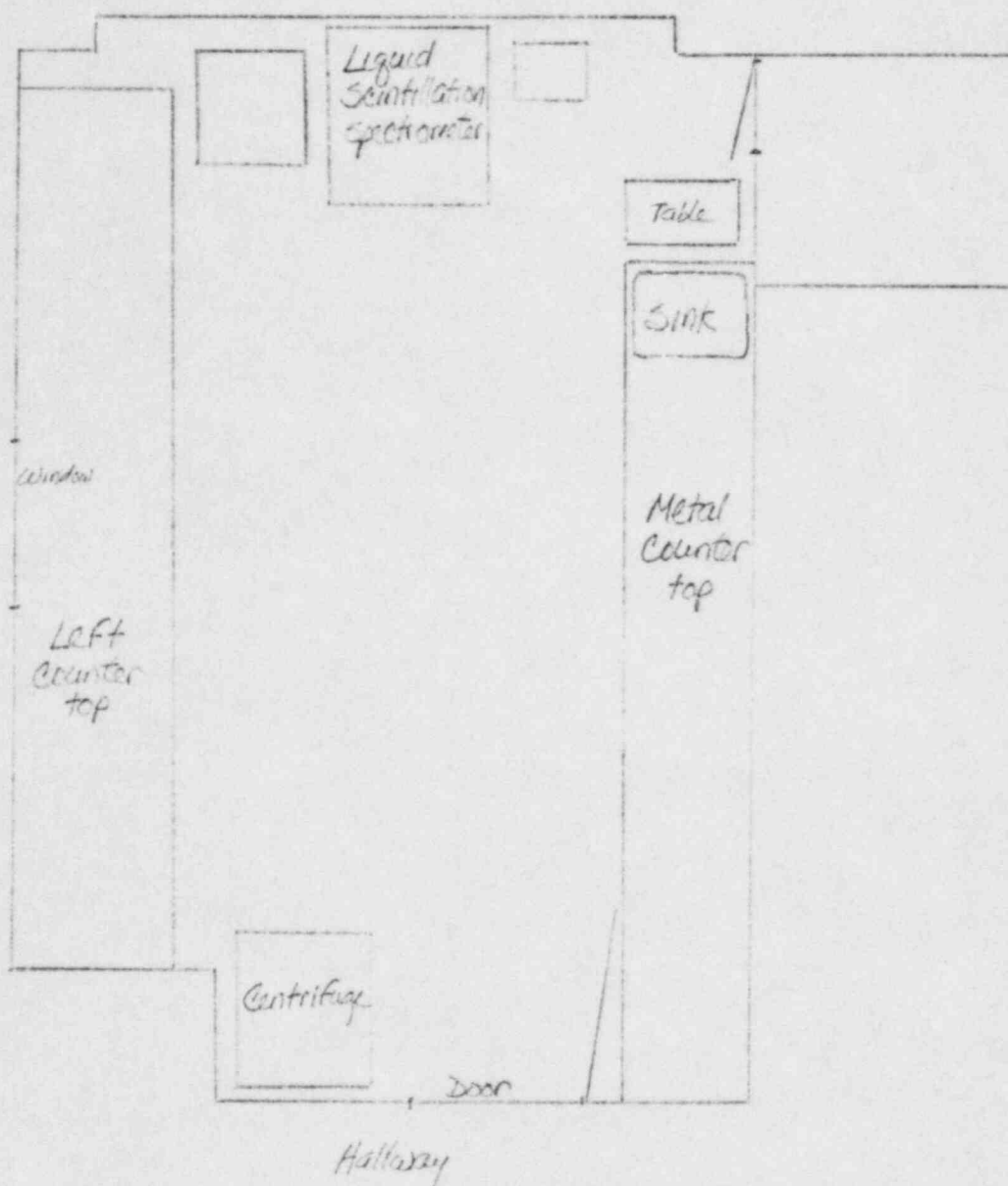


Building Exterior

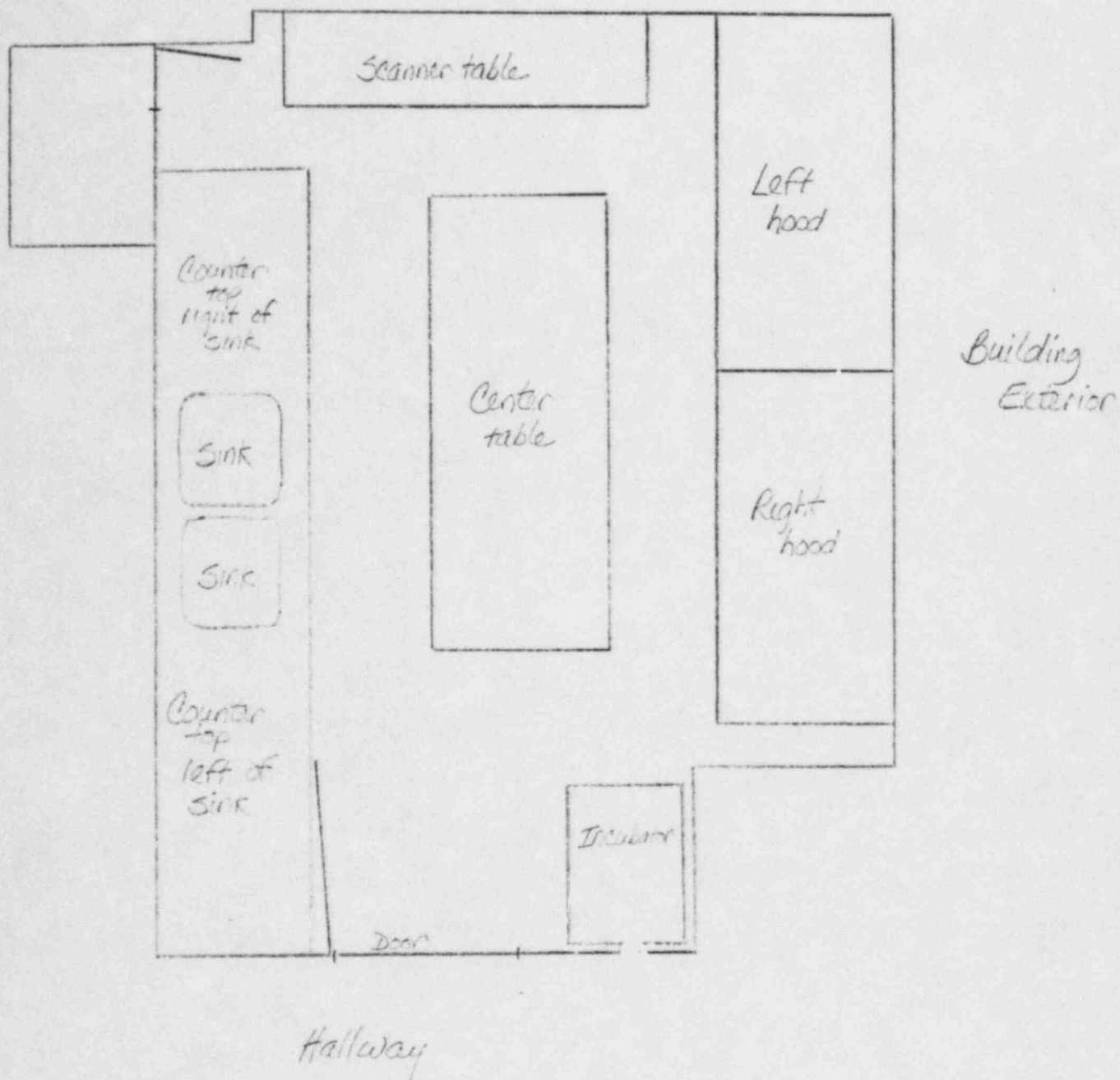


ROOM 162

Building  
Exterior

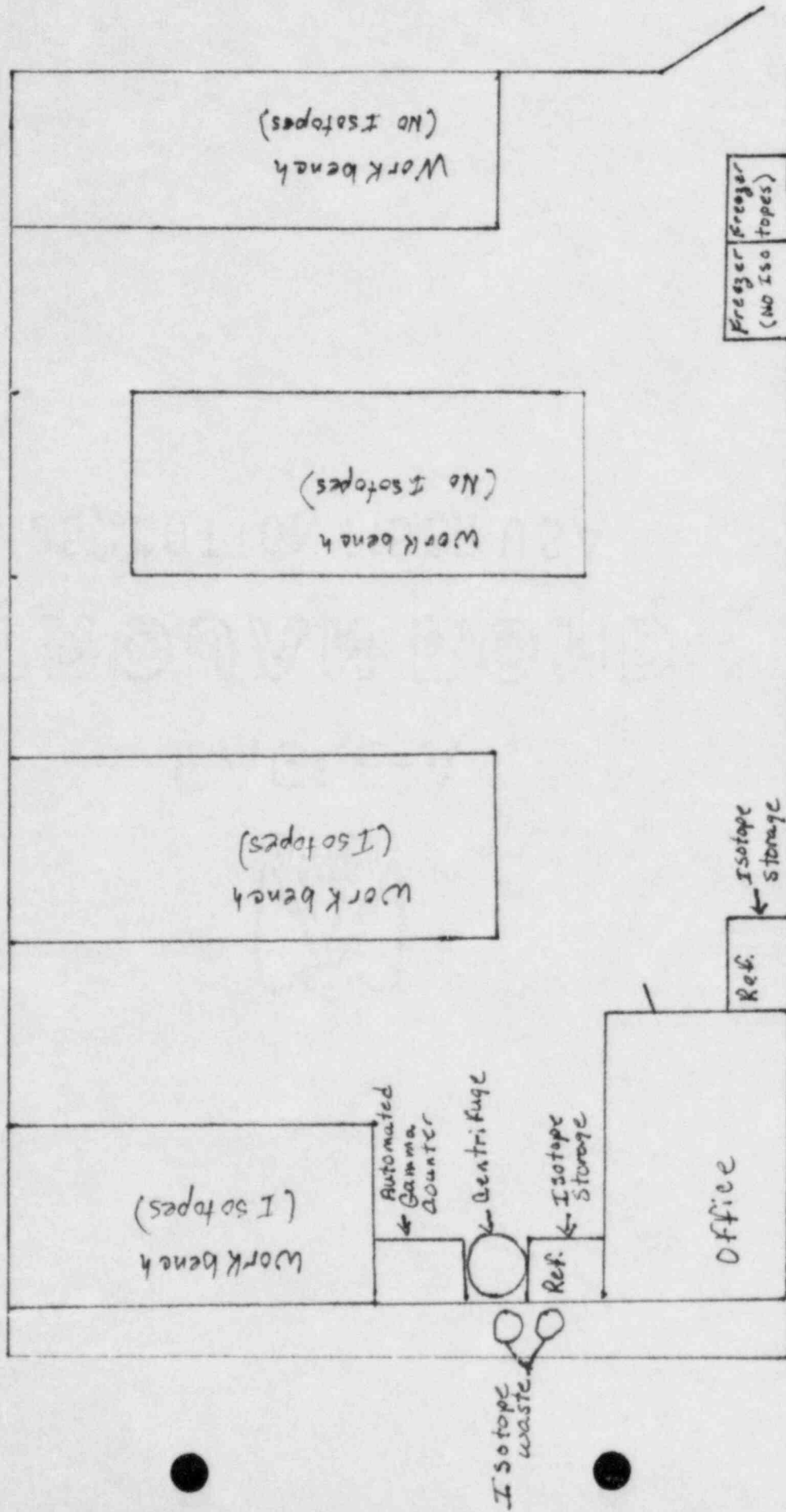


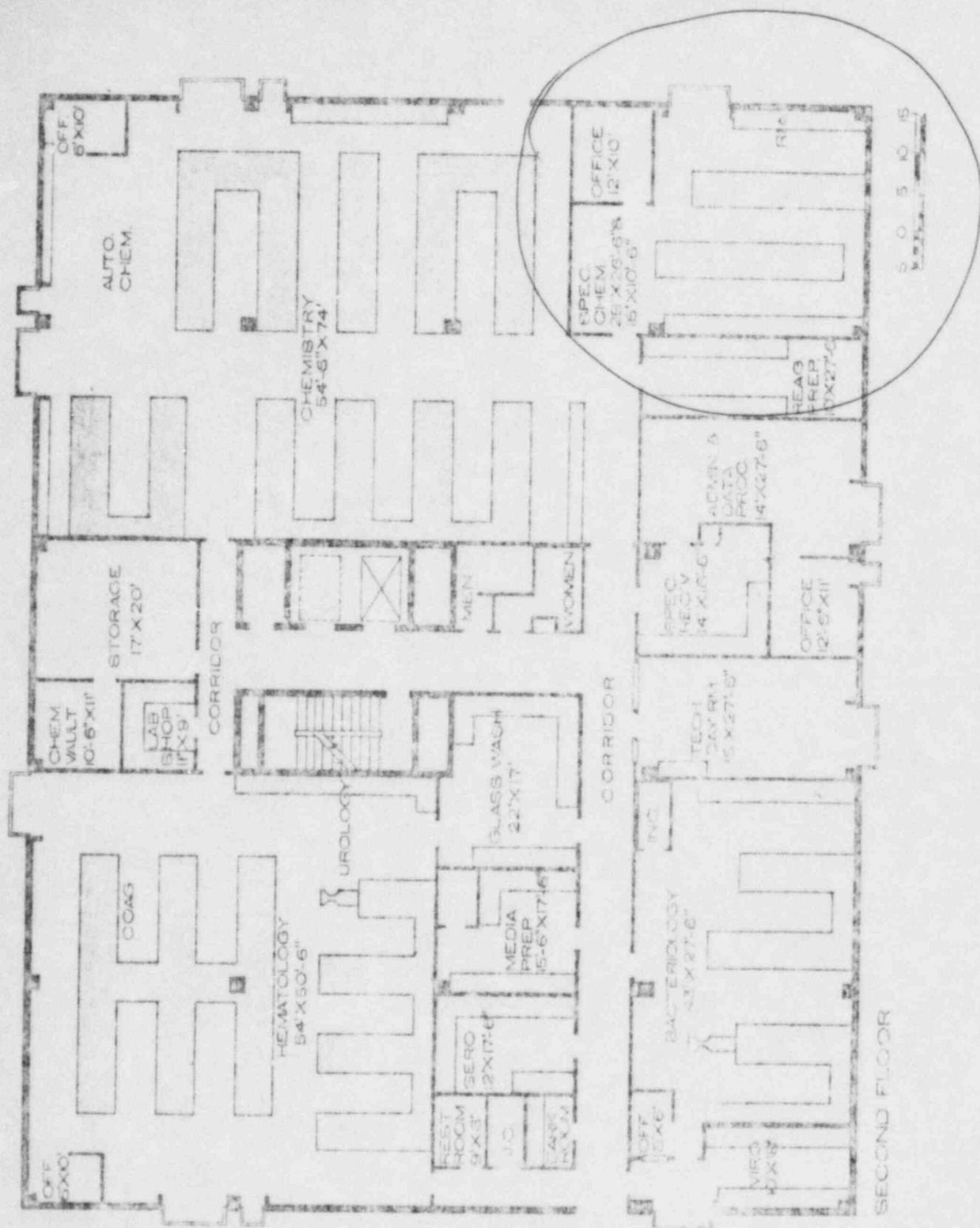
ROOM 164



ROOM 165

# Special Chem. Lab







## PERSONNEL INSERVICE TRAINING

1. Four technologists are employed in the Nuclear Medicine Department.
  - a. Three are registered with The American Registry of Radiologic Technologists in Nuclear Medicine.
  - b. One is certified with The Nuclear Medicine Technology Certification Board. Two have applied for certification.
  - c. One is preparing for The Nuclear Medicine Technology Certification Board registry.
2. Departmental meetings are held the last Wednesday of every month.
3. Monthly inservice tapes and programmed study guides (Educational Reviews, Inc. Leeds, Alabama).
4. Attend seminars on Nuclear Medicine.

## MEMORANDUM

## Unpacking and Logging Radionuclide Shipments

All radioactive packages should be delivered to the Nuclear Medicine Laboratory "HOT" room and placed in the area designated for processing.

Packages should be opened and inspected immediately upon receipt.

Disposable gloves should be worn while processing the packages and remote handling devices should be used when possible.

### Procedure

1. Measure the exposure rate at the package surface with a portable ionization chamber. Record exposure rate (mR/hr) on form "log 1." (If exposure rate exceeds 200 mR/hr, do not open. Notify the Radiation Safety Officer.)
2. Open outer package and remove packing slip. Open inner package and verify that the contents agree in name and activity with the packing slip.
3. Check for possible breakage of seals or containers, loss of liquid, or change in color of liquid absorbing material.
4. If the shipment appears intact, remove the radioactive material from the outer package and place behind lead shielding.
5. Monitor (G.M. survey meter) the package's outer surface and inner contents for radioactive contamination. Document any pertinent findings on the packing slip.
6. Record the date the shipment was received, radionuclide, chemical form, activity, supplier, and disposition on form "log 1."
7. Store the radioactive material at designated location. Record radiopharmaceuticals used in the proper log book on the appropriate "log 2" form.
8. Submit packing slips and package inserts to the Radiation Safety Officer. Immediately notify the Radiation Safety Officer of damage or breakage in the shipping container or of any discrepancies.

Note: Contaminated containers, liners, shields, etc. should be discarded in the "hot" waste containers. Uncontaminated items may be discarded in the regular waste containers after removing or defacing any labels indicating the presence of radioactive material.

Shipments of Na <sup>131</sup>I should be processed under a hood.







## Radiation Safety Regulations

It is the responsibility of those working with radioactive materials to protect themselves and others from radiation hazards arising from their work. Bad example and careless working habits may unnecessarily expose associates or contaminate facilities and cannot be tolerated. The following regulations shall be observed.

1. Eating, drinking, smoking, and the application of cosmetics are prohibited in areas where unsealed radioactive materials are being handled.
2. Working with radioactive materials when open wounds are present on exposed surfaces of the body is prohibited unless wounds are properly dressed and protected.
3. Pipetting or any similar operation by mouth suction is prohibited. Disposable gloves shall be worn when handling potentially contaminated items. Disposable absorbent pads and remote handling devices shall be utilized when possible.
4. Hands, feet, and clothing shall be monitored routinely for contamination. Hands should be washed routinely after handling radioactive materials, especially before eating.
5. Film badges shall be worn in controlled areas.
6. Contaminated waste shall be disposed of in the containers provided. Contaminated liquid waste shall not be poured into drains without approval of the Radiation Safety Officer.
7. Stock shipments shall be handled and stored in specially designated locations. Vessels containing radioactive materials shall be labeled as to radionuclide, activity, and date of calibration, and shall be adequately shielded while in use and in storage.
8. "Good housekeeping" shall be maintained at all times. Spillage should be prevented, but in the event of such an accident, the prescribed emergency procedures should be followed. (See the section on Emergency Procedures for Radioactive Spills.)
9. Use tongs to handle vials
10. Use lead syringe holder for injection

## Notes on Radiation Handling Equipment

To enable personnel to work safely with unsealed radioactive materials, the nuclear medicine laboratory must have the proper radiation handling equipment. The following is a list of basic radiation handling equipment which should be available in the nuclear medicine laboratory.\*

### Equipment (shielding)

Lead bricks (e.g., 2" x 4" x 6")

Lead syringe holders for transporting syringes containing radioactivity

Lead syringe shields for reducing exposure during injection of radiopharmaceuticals

Lead vial and container shields ("pigs") for reducing exposure during transport and storage of vials, etc. that contain radioactivity

### Remote Handling

Remote pipetters

Tongs and other remote handling tools

### Contamination Control

Disposable gloves

Disposable shoe covers and boots for emergency spills

Absorbent pads (absorbent layer backed by nonabsorbent plastic material) for covering work surfaces

Trays (e.g., 14" x 18" x 7/8" deep) used with absorbent pads for covering work surfaces

Decontaminating agents. Special agents are commercially available for decontaminating hands, utensils, work areas, etc.

Signs and labels indicating the presence of radioactive materials in areas or rooms where they are being used or stored. Labels on containers indicating radionuclide, activity, and date.

\*Notes on Laboratory Design and safe working procedures with radioactive materials can be found in NCRP No. 8 and NCRP No. 30 (see reference list).

## Monitoring

Geiger-Mueller (G.M.) survey meter (portable, battery operated)

Geiger-Mueller (G.M.) room monitor (stationary, wall plug)

Ionization survey meter (portable, battery operated) e.g., a "cutie pie" or similar instrument

Ionization chamber "dose calibrator" (stationary, wall plug)

### Note:

Several G. M. and ionization instruments are commercially available. The user should be careful to purchase one that satisfies his requirements. Several commercial suppliers have most or all of this equipment available.

## PATIENT SAFETY PRECAUTIONS

- 1) Make positive identification of the patient. Check wrist band on in-hospital patients.
- 2) Check requisition for study to be performed.
- 3) Check for possible pregnancy in all child-bearing age females.
- 4) Check label carefully of vial containing appropriate isotope to affirm contents and concentration.
- 5) Draw up calculated dose. Monitor in dose calibrator to confirm dose.
- 6) Administer to patient by appropriate route.
- 6) Report any adverse reactions to radiation safety officer.

## Emergency Procedures for Radioactive Spills

IN CASE OF EMERGENCY -  
PLEASE PHONE:

Dr. J. Edwards  
238-8519

Karen Andrusco  
837-8343

Deb Taylor  
831-6330

Darlene Conzemius  
238-2873

Tim Heiser  
849-7870

Unsealed radioactive liquids are handled routinely in the Nuclear Medicine Laboratory. The potential for spillage is always present. It is imperative that individuals handling radioactive materials respond properly to these spills so as to limit their radiation exposure and prevent the spread of contamination.

### Minor Spills (tracer activities)

1. Notify persons in the immediate area that a spill has occurred.
2. Cover the spill with absorbent paper.
3. Limit access to the area to only those persons dealing with the spill.
4. Survey (G.M. survey meter) potentially contaminated personnel before they disperse and decontaminate as necessary.\*
5. Notify the Radiation Safety Officer of the incident.

### Major Spills (therapy activities)

1. Notify all persons not involved in the spill to vacate the room at once. Limit the movement of displaced persons to confine the spread of contamination.
2. Cover spill with absorbent paper.
3. Switch off all fans. Close windows.
4. Vacate room.
5. Close the door to the room. Prevent entry into the room.
6. If the spill is on the skin, flush thoroughly.
7. If the spill is on clothing, discard outer or protective clothing at once.
8. Notify the Radiation Safety Officer immediately.
9. Survey (G. M. survey meter) personnel involved. Immediately initiate decontamination of personnel as necessary, using mild soap and luke warm water.\*

\*Refer to Radiological Health Handbook, pp. 194-203 (reference list), for methods of personnel and area decontamination.



## G-M MONITORING

MONTH: _____	WEEK I	WEEK II	WEEK III	WEEK IV
	Date: _____	Date: _____	Date: _____	Date: _____
	Time: _____	Time: _____	Time: _____	Time: _____
HOT LAB	MR/HR	MR/HR	MR/HR	MR/HR
A. _____				
B. DOSE CALIBRATOR				
C. WORK AREA				
STORAGE ROOM				
OFFICE AREA				
RECTILINEAR SCANNER ROOM				
ANGER CAMERA ROOM				
WELL COUNTER ROOM				
INJECTION AREA				
EXPANSION ROOM				
HALL (AROUND RADIOISOTOPES)				
ISOTOPE WAITING ROOM				
KOW STORAGE				

COMMENTS:

ACTION TAKEN:

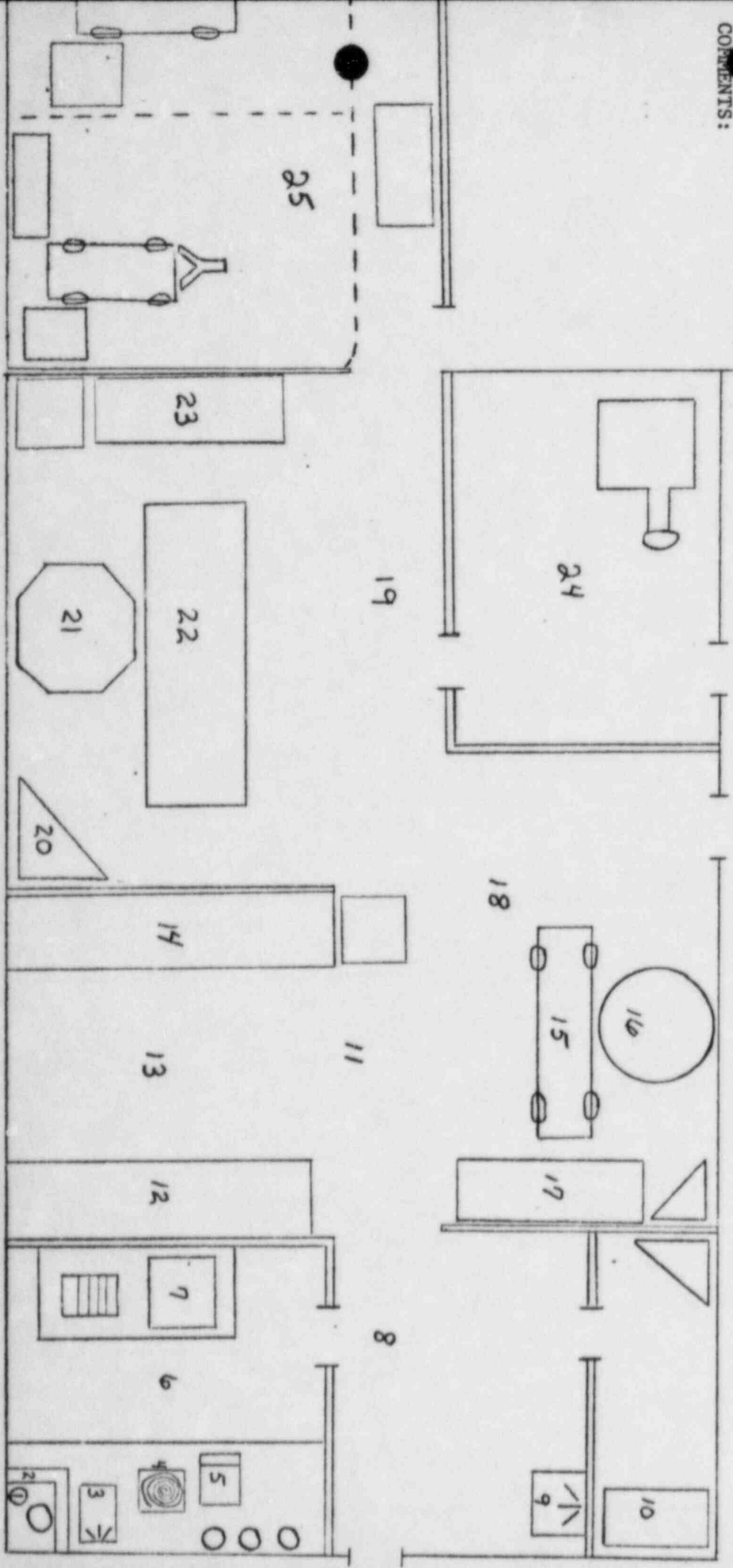
NOTE: Measurements taken are at working distances.

See Additional Information  
Enclosed

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
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- 16.

- 17.
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- 23.
- 24.
- 25.

COMMENTS:



WIPES FOR RADIOACTIVITY (<sup>3</sup>H)

ENDOCRINE RESEARCH

DATE \_\_\_\_\_

BACKGROUND COUNT \_\_\_\_\_

Room 165

COUNTERTOP LEFT OF SINK	_____
SINK	_____
COUNTERTOP RIGHT OF SINK	_____
SCANNER TABLE	_____
LEFT HOOD	_____
RIGHT HOOD	_____
CENTER TABLE	_____
FLOOR	_____
OTHER _____	_____
_____	_____

Room 164

CENTRIFUGE	_____
LEFT COUNTERTOP	_____
SINK	_____
METAL COUNTERTOP	_____
FLOOR	_____
OTHER _____	_____
_____	_____

Room 162

FAR LEFT COUNTERTOP	_____
LEFT CENTER COUNTERTOP	_____
RIGHT CENTER COUNTERTOP	_____
SINK	_____
HOOD	_____
FLOOR	_____
REFRIGERATOR	_____
OTHER _____	_____
_____	_____

Madison General Hospital Laboratory  
Madison, Wisconsin

Date: \_\_\_\_\_

[illegible]

COMMENTS:

See Additional Information  
Enclosed 17

## "RING AND DISPOSAL OF RADIOACTIVE WASTE"

Radioactive isotope waste (syringes, needles, sponges, vials, cows) are disposed in the following manner:

A) Technetium cows at the end of one week are stored temporarily in the storage compartment underneath the sink in the radioisotope hot lab (this is a lead enclosed storage area). The cows are then stripped and the lead container with the isotope is removed to the storage area in the x-ray cobalt room on 1 Tower. They are stored in this area for six months to one year and then the isotope waste is removed from the lead pig, monitored and disposed if the radiation is at a safe level.

B) Those materials used in administration and storage of isotopes are separated into categories, short and long lived, combustible and non-combustible. These items are stored in the storage compartment until sufficient quantity is on hand to warrant removing to appropriate storage areas. Long lived combustible and non-combustible items are removed to the storage area on the roof of the lower Building. Short lived non-combustible (storage containers) items are also removed to the storage area on the roof of the Tower Building. Short lived combustible (syringes and needles) are removed to the storage compartment underneath the sink in the radioisotope hot lab.

Those materials that have been stored on the roof of the Tower Building after sufficient time (six months or  $\$2$  MR/HR) are then disposed of. The waste which is non-combustible is taken and placed in the compactor and then the material from the compactor is taken to the city of Madison land fill site. The materials which are combustible are stored until a safe radiation level is reached ( $\$2$  MR/HR) and then taken to the hospital incinerator and disposed of in this manner.

*15,000 gal waste per day*

### RADIATION SURVEYS

- 1) Weekly G-M Monitoring
- 2) Monthly Wipe Test



Special nursing instructions for handling patients receiving therapeutic doses of radioactive material:

- 1) Patient to be assigned to a private room.
- 2) Perform duties in patient's room as quickly as possible. Avoid marked hazard zone as much as possible.
- 3) Wear disposable gloves when handling excreta.
- 4) Store urine in jug provided as instructed.
- 5) Utensils and dishes can be released into general circulation.
- 6) Keep bed linen in hamper in the room until released by physician in charge.
- 7) Do not reassign the room until monitored and cleared by physician in charge.

CONSENT FOR  $I_{131}$  THERAPY

1. Sodium Iodide 131 is a radioactive compound commonly used in the diagnosis and treatment of thyroid diseases. It has been established as a safe pharmaceutical without undue radiation hazard in doses employed for diagnostic and therapeutic use.
2. When used for treatment for hyperthyroidism or goiter, there are primarily three outcomes.
  - A) The hyperthyroidism or goiter is controlled without need for retreatment.
  - B) The hyperthyroidism or goiter is not controlled, requiring further treatment.
  - C) You may become hypothyroid, requiring that you take thyroid pills for the rest of your life. It is very important that you understand that hypothyroidism can occur years after treatment, and, therefore, it is important that you remain under the care of a physician.
3. Side effects rarely occurring soon after treatment are:
  - A) Thyroiditis - inflammatory reaction in the thyroid gland. This shows up as swelling and tenderness in the gland.
  - B) Temporary Increase in hyperthyroidism. Example; Increase in heart rate or Increase in the symptoms you have already experienced.

IF APPLICABLE

4. Treatment cannot be given if you are pregnant or nursing.

I certify by signing below that I have read and understand the above and authorize DR. \_\_\_\_\_ and his assistants to administer \_\_\_\_\_ Hcl of  $NaI^{131}$  for treatment of \_\_\_\_\_.

DATE \_\_\_\_\_

SIGNED \_\_\_\_\_

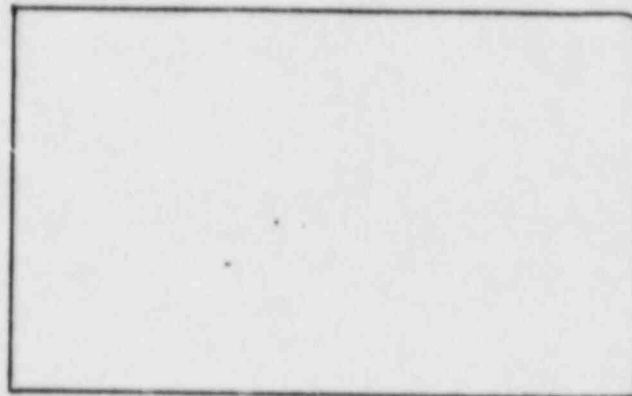
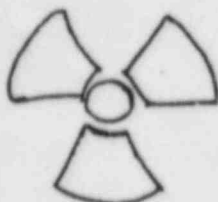
WITNESS \_\_\_\_\_

## NUCLEAR MEDICINE

### RADIATION ISOLATION NURSING INSTRUCTIONS

1. If pregnant, do not attend this patient.
2. All visitors must remain outside the indicated hazard zone.
3. The patient may not have visitors for the first 24 hours after administration of the radionuclide.
4. The patient will receive only disposable food trays which will be saved in the room.
5. Waste papers and soiled linen are to be placed in appropriate containers and saved in the room.
6. The patient must save all urine in the container provided by Nuclear Medicine.
7. No biological samples (other than blood) are to be removed from the room without approval by the Nuclear Medicine Health Physicist.
8. The room is not to be cleaned during the radiation isolation period.
9. When the patient has reached a permissible radiation level, the Nuclear Medicine Health Physicist will remove the Radiation Isolation Precautions and monitor the room prior to cleaning.
10. Avoid all unnecessary contact with the patient but carry out normal nursing care as quickly as possible.

NUCLEAR MEDICINE



THERAPEUTIC RADIONUCLIDE PRECAUTIONS

This patient was administered \_\_\_\_\_ mC of \_\_\_\_\_ on  
\_\_\_\_\_ at \_\_\_\_\_ am/pm.

No pregnant employee may attend this patient during the precaution period. All employees should avoid unnecessary contact with the patient and follow the precautions checked below:

1. If the patient reports nausea or is obviously nauseated, notify a radiologist and ask for an order of an antiemetic drug.
2. If the patient should vomit, collect the vomitus and call a radiologist.
3. If the patient should contaminate the bed, clothes, or any other area with urine, vomiting or feces, handle with disposable gloves, retain and notify a radiologist.
4. No urine samples are to be collected or removed from the patient's room.
5. These precautions are to be followed for \_\_\_\_\_ days at which time all significant radioactivity will have been excreted.
6. THE PATIENT IS PLACED ON RADIATION ISOLATION AND MAY NOT BE REMOVED FROM THE ROOM AND IS SUBJECT TO THE RADIATION ISOLATION NURSING INSTRUCTIONS UNTIL CERTIFIED SAFE BELOW.

Released: Certified Safe

Date: \_\_\_\_\_

Hour: \_\_\_\_\_

### USE OF XENON 133 GAS

1. Xenon 133 gas is ordered as needed from Medit physics.
2. While it is stored in the department, it is kept behind "L" Bricks, just below the exhaust fan in the hot lab. Please refer to diagram of department.
3. In performing the procedure a closed breathing system is used. Tubing leading from the closed breathing system directly to the exhaust fan in the LFOU room is used for washout. (Please refer to diagram of department)
4. The patient and the room are monitored during the procedure. The patient is kept on the closed breathing system until background has been reached (Please refer to enclosed photos).





