

FORM NRC-313M (8-78) 10 CFR 35	<b>U.S. NUCLEAR REGULATORY COMMISSION</b> <b>APPLICATION FOR MATERIALS LICENSE - MEDICAL</b>	Approved: GAO R0587																																																		
<b>INSTRUCTIONS -</b> 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 License 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 D.C. GENERAL HOSPITAL WASHINGTON, D.C. 20003  TELEPHONE NO.: AREA CODE <u>202</u> , <u>675</u> <u>5000</u>	<b>1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED</b> (If different from 1.a.) INCLUDE ZIP CODE  19th & Massachusetts Ave., S.E. Washington, D.C. 20003																																																			
<b>2. PERSON TO CONTACT REGARDING THIS APPLICATION</b>  TELEPHONE NO.: AREA CODE (    )	<b>3. THIS IS AN APPLICATION FOR:</b> (Check appropriate item) a. <input type="checkbox"/> NEW LICENSE <span style="float: right;">08-04289 06</span> b. <input checked="" type="checkbox"/> AMENDMENT TO LICENSE NO. _____ c. <input type="checkbox"/> RENEWAL OF LICENSE NO. _____																																																			
<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.) (Add to present License)  Abbas Motazed, M.D.	<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.)  Roney W. Keys																																																			
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## 24. PERSONNEL MONITORING DEVICES

	TYPE <small>(Check appropriate box)</small>	SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
b. FINGER	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
c. WRIST	FILM		
	TLD		
	OTHER <i>(Specify)</i>		

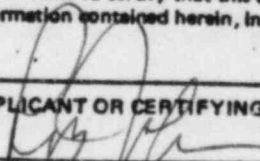
d. OTHER *(Specify)*

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

<b>a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL</b>			
NAME OF HOSPITAL		b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.	
MAILING ADDRESS			
CITY	STATE    ZIP CODE		
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.

<p>a. LICENSE FEE REQUIRED <i>(See Section 170.31, 10 CFR 170)</i></p>	<p>b. APPLICANT OR CERTIFYING OFFICIAL <i>(Signature)</i></p> <div style="text-align: center;">  </div>
<p>(1) LICENSE FEE CATEGORY:</p>	<p>(1) NAME <i>(Type of Print)</i> Robert Johnson</p>
<p>(2) LICENSE FEE ENCLOSED: \$ _____</p>	<p>(2) TITLE Executive Director</p>
	<p>c. DATE    December 5, 1983</p>

**TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER**

<b>1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER</b> Abbas Motazed, M.D.	<b>2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE</b> Washington, D.C.
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<b>3. CERTIFICATION</b>		
<b>SPECIALTY BOARD A</b>	<b>CATEGORY B</b>	<b>MONTH AND YEAR CERTIFIED C</b>
1. Nuclear Medicine 2. Internal Medicine	Laboratory & Clinical	12/21/79

<b>4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES</b>			
<b>FIELD OF TRAINING A</b>	<b>LOCATION AND DATE(S) OF TRAINING B</b>	<b>TYPE AND LENGTH OF TRAINING</b>	
		<b>LECTURE/ LABORATORY COURSES (Hours) C</b>	<b>SUPERVISED LABORATORY EXPERIENCE (Hours) D</b>
a. RADIATION PHYSICS AND INSTRUMENTATION	Johns Hopkins Hospital 7/1/75 to 7/1/77		
b. RADIATION PROTECTION	Johns Hopkins Hospital 7/1/75 to 7/1/77		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Johns Hopkins Hospital 7/1/75 to 7/1/77		
d. RADIATION BIOLOGY	Johns Hopkins Hospital 7/1/75 to 7/1/77		
e. RADIOPHARMACEUTICAL CHEMISTRY	Johns Hopkins Hospital 7/1/75 to 7/1/77		

<b>5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)</b>				
<b>ISOTOPE</b>	<b>MAXIMUM AMOUNT</b>	<b>WHERE EXPERIENCE WAS GAINED</b>	<b>DURATION OF EXPERIENCE</b>	<b>TYPE OF USE</b>
all isotopes		Johns Hopkins Hospital	two years	treatment and diagnostic
I-131		New York Hospital New York, N.Y.	one year	treatment of thyroid cancer & hyperthyroidism

## 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

FULL NAME

Abbas Motazedi

STREET ADDRESS

19th &amp; Massachusetts Ave., S.E.

CITY

Washington, D.C.

STATE

ZIP CODE

20003

## KEY TO COLUMN C

## PERSONAL PARTICIPATION SHOULD CONSIST OF:

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.

## 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	200	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	10	
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES	10	
	IN VITRO STUDIES	100	
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING	100	
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY	10	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	100	
OTHER			
Tc-99m	BRAIN IMAGING	100	
	CARDIAC IMAGING	100	
	THYROID IMAGING	100	
	SALIVARY GLAND IMAGING	10	
	BLOOD POOL IMAGING	110	
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	100	
	LUNG IMAGING	100	
	BONE IMAGING	100	
OTHER	G.I. BLEEDING	10	



# 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	5	
	TREATMENT OF HYPERTHYROIDISM	50	
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	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR	10	
Sn-113/ In-113m	GENERATOR	10	
Tc-99m	REAGENT KITS		
Other			

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

1975 to 1977  
1981 to 1982

## 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

a. NAME OF SUPERVISOR  
Henry N. Wagner, Jr., M.D.

b. NAME OF INSTITUTION  
Johns Hopkins Hospital

c. MAILING ADDRESS  
615 N. Wolfe Street

d. CITY  
Baltimore, Md. 21205

## 5. MATERIALS LICENSE NUMBER(S)

## 6. PRECEPTOR'S SIGNATURE

## 7. PRECEPTOR'S NAME (Please type or print)

Henry N. Wagner, Jr., M.D.

## 8. DATE

9/22/82

# The American Board of Nuclear Medicine

Incorporated 1971

A conjoint Board organized with the sponsorship of the American Board of Internal Medicine, American Board of Pathology, American Board of Radiology and the Society of Nuclear Medicine.

Hereby certifies that

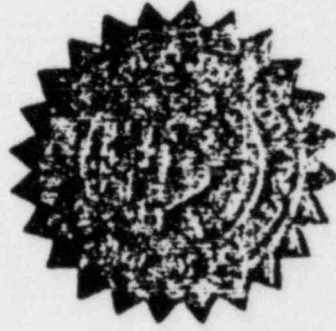
**Abbas Motazedi M.D.**

has met the requirements of this Board and is  
certified as qualified to practice as a specialist in  
all aspects of clinical and laboratory

## Nuclear Medicine

including but not limited to Radiobioassay, Nuclear Imaging,  
in Vivo Measurements and Therapy with unsealed Radionuclides.

*F. J. Bond*



*Joseph Flannery*

04427

12/21/79

CURRICULUM VITAE

NAME: Abbas Motazedi

ADDRESS: HOME: 2200 Columbia Pike #1216  
Arlington, Virginia 22204

TELEPHONE: HOME (703) 486-8522

OFFICE: (1) Georgetown University Medical Service  
D.C. General Hospital  
Washington, D.C. 20003  
(202) 675-7586 or (5582)

CERTIFICATION:

1. September 1979 Board Certified in Nuclear Medicine
2. September 1980 Board Certified in Internal Medicine
3. November 1983 Board Certified in Endocrinology Metabolism

LICENSING: Maryland, Virginia, D.C., New York, Michigan,  
California

EDUCATION:

1. 1966 - 1974 National University of Iran, School of Medicine
2. September 1974 Received M.D. degree

POST GRADUATE TRAINING:

1. July 1975 - July 1977 Nuclear Medicine training at the John  
Hopkins Hospital, Baltimore, Maryland
2. July 1977 - July 1980 Internal Medicine internship and residency  
at the Georgetown University Medical  
Service at D.C. General Hospital in  
Washington, D.C.
3. July 1980 - July 1981 Endocrinology and Metabolism Fellowship  
at the University of Michigan in Ann Arbor,  
Michigan
4. July 1981 - July 1982 Endocrinology and Metabolism Fellowship  
at the Cornell Medical Center in New York City

CURRENT POSITION:

July 1982 to Present Chief of Endocrinology Section  
Georgetown University Medical Service  
Acting Chief, Nuclear Medicine  
D.C. General Hospital  
Washington, D.C. 20003

TEACHING APPOINTMENT:

Instructor of Medicine, Georgetown University  
School of Medicine. July 1982

PROFESSIONAL SOCIETY:

Membership, Society of Nuclear Medicine

PERSONAL DATA:

Date of Birth - January 29, 1949

Sex - Male

Marital Status - Married

Social Security #578-90-7245

PUBLICATIONS:

1. Physiological interpretation of time activity curves from cerebral flow studies, published by Society of Nuclear Medicine, January, 1977.
2. Utility of late xenon washout for imaging abnormalities of regional ventilation, Journal of Nuclear Medicine, September, 1979.
3. Treatment of adrenal carcinomas. Arch surg-vol. 117, September, 1979.
4. Ablation of post-surgical thyroid remnants in patients with differentiated thyroid cancer can be achieved with less whole body radiation. An abstract was presented in 29th annual meeting of Society of Nuclear Medicine, June, 1982 in Miami, Florida.



FORM NRC-313M

(8-78)

10 CFR 35

## U.S. NUCLEAR REGULATORY COMMISSION

## APPLICATION FOR MATERIALS LICENSE - MEDICAL

Approved:

GAO R0557

**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

D.C. GENERAL HOSPITAL  
WASHINGTON, D.C. 20003

TELEPHONE NO.: AREA CODE (202) 675 5000

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

19th & Massachusetts Ave., S.E.  
Washington, D.C. 20003

2. PERSON TO CONTACT REGARDING THIS APPLICATION

TELEPHONE NO.: AREA CODE ( ) \_\_\_\_\_

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

a. ☐ NEW LICENSE

b. ☒ AMENDMENT TO LICENSE NO. 08 04289 06

c. ☐ RENEWAL OF LICENSE NO. \_\_\_\_\_

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

Mohammadali Sarshar, 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.)

Ramey W. Keys

## 6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED	MAXIMUM POSSESSION LIMITS	ADDITIONAL ITEMS:	MARK ITEMS DESIRED	MAXIMUM POSSESSION LIMITS
	"X"			"X"	
10 CFR 31.11 FOR IN VITRO STUDIES	X		IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM	X	
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	
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10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA	X	
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED	XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.	X	
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

FORM NRC-313M

(8-78)

## 24. PERSONNEL MONITORING DEVICES

TYPE <small>(Check appropriate box)</small>		SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
b. FINGER	FILM		
	TLD		
	OTHER <i>(Specify)</i>		
c. WRIST	FILM		
	TLD		
	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.  c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAU- TIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.	
MAILING ADDRESS			
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) LICENSE FEE CATEGORY:	(1) NAME <i>(Type of Print)</i> Robert Johnson
(2) LICENSE FEE ENCLOSED: \$	(2) TITLE Executive Director
(2) LICENSE FEE ENCLOSED: \$	c. DATE 12/5/83

# **TRAINING AND EXPERIENCE AUTHORIZED USER OR RADIATION SAFETY OFFICER**

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER Mohammadali Sarshar, M.D.		2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE Washington, D.C.		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
Nuclear Medicine		Three years		
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	Long Island Jewish Medical Center (7/1/80 to 6/30/82)			
b. RADIATION PROTECTION	Long Island Jewish Medical Center (7/1/80 to 6/30/82)			
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Long Island Jewish Medical Center (7/1/80 to 6/30/82)			
d. RADIATION BIOLOGY	Long Island Jewish Medical Center (7/1/80 to 6/30/82)			
e. RADIOPHARMACEUTICAL CHEMISTRY	Long Island Jewish Medical Center (7/1/80 to 6/30/82)			
5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
All Isotopes		Long Island Jewish Medical Center	Two years	Diagnostic and Therapeutic
All Isotopes		George Washington University Hospital	One year	Diagnostic and Therapeutic

## 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

## FULL NAME

Mohammadali Sarshar

## STREET ADDRESS

19th &amp; Massachusetts Ave., S.E.

## CITY

WASHINGTON, D.C.

## STATE

## ZIP CODE

20003

## KEY TO COLUMN C

## PERSONAL PARTICIPATION SHOULD CONSIST OF:

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.

## 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	1020	
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	150	
	LIVER FUNCTION STUDIES	20	
	FAT ABSORPTION STUDIES	5	
	KIDNEY FUNCTION STUDIES	750	
	IN VITRO STUDIES	12,000	
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING	1240	
P-32	EYE TUMOR LOCALIZATION		
Se-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY	25	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	320	
OTHER			
Tc-99m	BRAIN IMAGING	750	
	CARDIAC IMAGING	425	
	THYROID IMAGING	1460	
	SALIVARY GLAND IMAGING	20	
	BLOOD POOL IMAGING	80	
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING	2450	
	LUNG IMAGING	1800	
	BONE IMAGING	2200	
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	25	
P-32 (Colloidal)	INTRACAVITARY TREATMENT	6	
I-131	TREATMENT OF THYROID CARCINOMA	12	
	TREATMENT OF HYPERTHYROIDISM	162	
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
	TELETHERAPY TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION	1830	
Mo-99/ Tc-99m	GENERATOR	225	
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS	750	
Other			

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

July 1, 1980 thru June 30, 1982

3620 Hours

## 4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

### a. NAME OF SUPERVISOR

Lester M. Lewy, M.D.

### b. NAME OF INSTITUTION

Long Island Jewish-Hillside Medical Center

### c. MAILING ADDRESS

### d. CITY

New Hyde Park, N.Y. 11042

## 5. MATERIALS LICENSE NUMBER(S)

NYC 126-5 (BROAD LICENSE)

## 6. PRECEPTOR'S SIGNATURE

## 7. PRECEPTOR'S NAME (Please type or print)

Lester M. Lewy, M.D.

## 8. DATE

OCTOBER 24, 1983

# The George Washington University

*This Certifies that*

*Mohammadali Sarshar, M.D.*

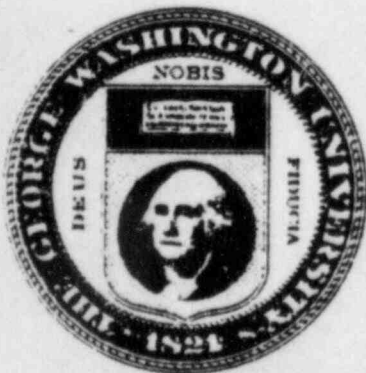
*Has satisfactorily completed service in*

The George Washington University Medical Center  
and Affiliated Hospitals

*Resident in Nuclear Medicine*

*July 1, 1982 to June 30, 1983*

*In witness whereof this certificate is given at Washington  
in the District of Columbia, United States of America*



*Richard C. Fera*  
Director of the Program

*Ronald P. Langman*  
Vice President for Medical Affairs

*Lloyd H. Elliott*  
President of the University

# Long Island Jewish-Hillside Medical Center

Be it known that

Mohammadali Sarshar, M.D.

has served on the House Staff of Long Island Jewish-Hillside Medical Center

in the capacity of

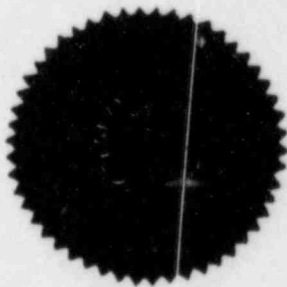
Resident in Nuclear Medicine

for the period

July 1, 1980 to June 30, 1982

and has discharged the duties of this position with professional ability and in faithful conformity to the rules and standards of the Medical Center

In Witness Whereof the undersigned have affixed their signatures  
on June 30, 1982

  
Raymond Cohen  
Dean of the Clinical Campus

Lester A. Levy, M.D.  
Chief of Independent Division

Robert K. Mark, M.D.  
President

Matthew Seered  
Chairman, Board of Trustees



# The American Board of Nuclear Medicine

A COMMITTEE BOARD OF THE  
AMERICAN BOARD OF INTERNAL MEDICINE  
PATHOLOGY AND RADIOLOGY WAS FORMED  
BY THE SOCIETY OF NUCLEAR MEDICINE

WILLIAM H. BLAHD, M.D.  
Chairman, Credentials Committee

Nuclear Medicine Service, Veterans Administration  
Wadsworth Medical Center, Los Angeles, California 90073

Telephone (213) 824-3140

July 10, 1981

M. Sarshar, M. D.  
Division of Nuclear Medicine  
Long Island Jewish Medical Center  
New Hyde Park, NY 11042

Dear Dr. Sarshar:

I am replying to your letter of June 26, 1981, concerning your training in nuclear medicine. Your year of internship at Mercy Hospital, Toledo, Ohio, and your year of residency in pathology at Temple University Hospital, Philadelphia, Pennsylvania, will satisfy the American Board of Nuclear Medicine's requirements for preparatory postgraduate training. Upon completion of two years of nuclear medicine training at Long Island Jewish Medical Center, you will be eligible to take the ABNM certification examination. It is anticipated that an examination will be offered in September, 1982.

The American Board of Nuclear Medicine does not recognize "Board eligible" status.

Would you kindly attach a copy of this letter when you file your application for the ABNM certification examination.

Sincerely yours,

*W. H. Blahd*

W. H. BLAHD, M. D.  
Chairman  
Credentials Committee

Chairman  
JAMES W. FISCH, M.D.  
Los Angeles, California  
WILLIAM H. BLAHD, M.D.  
Los Angeles, California

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Los Angeles, California  
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Los Angeles, California

Chairman  
MYRON S. LINDGREN, M.D.  
Los Angeles, California  
PATRICIA A. WINDGREN, M.D.  
Los Angeles, California



RADIATION SAFETY OFFICER

Name, Training, & Experience

For duties & responsibilities, see

page 7 of DCGH Radiation Protection Manual

## CURRICULUM VITAE

### ROMEY WEBSTER KEYS

Personal Data: Born March 27, 1915 - Baltimore, Maryland.  
Social Security Number: 212-14-2358

Present Position: Radiation Safety Officer  
Clinical Instructor in Radiology Technology  
University of the District of Columbia.

Family: Wife - Amy M. Keys - Clinical Nurse, NNMC.  
Daughter - Margaret - Clinical Nurse.  
Son - Romey - Professor English UCLA - Ph.D  
Johns Hopkins University.  
Daughter - Amy - B.S Cum Laude Bowie State  
College, Miss Maryland 1983 - 1 year Dental  
School - Howard University.  
Daughter - Charlotte - B.S. - Government and  
Journalism - University of Maryland.  
Attending Notra Dame Law School.  
Son - William - A.A. - Prince Georges Community  
College - Student U.S.C. - Los Angeles, CA

### Biography and General Education

Educated in public schools of Baltimore, Maryland.  
Paul Lawrence Dunbar and Frederick Douglas High School.

1936 - Graduated - Morgan College with B.S.

1937 -40 X-Ray School Provident Hospital.

1942 - U.S. Army Forte George Meade, MD.

1943 - U.S. Army Camp Swift, Texas.

1943 - U.S. Army Hospital Tuskegee Air Field.

1944 -46 Chief Technologist Tuskegee Hospital.

1945 - Certified by Examining Board of the American  
Registry of Radiology Technology.

1946 - Commissioned Officer U.S. Public Health Service - July.

1946 -47 Assigned to the Signal Corp. Section - Pentagon.

1947 - Assigned to U.S. Public Health Service Liberia  
Station Hospital.

1947 Elected a member of the American Public Health Assoc.

1947 -51 Chief, Radiological Technologist - Public Health  
Mission Hospital in Liberia.

1951 -52 Reassigned U.S. Public Health Service, Washington, DC.

## OTHER TRAINING

- 1952 - "Medical Aspects of Nuclear Energy" - Army Medical Service Graduate School, Walter Reed Army Medical Center. Washington, D.C.
- 1953 - Discharged from U.S. Public Health Service.
- 1953 - Jan - July - Assigned Mt. Alto Veterans Hospital.
- 1953 - July - Released from Veterans Administration to take over operation of the Pediatric and Crippled Children's Section at the D.C. General Hospital.
- 1957- Isotope technique, conducted by The Canadian Society of X-Ray Technologists - The American Society of Radiological Technologists, Washington, D.C.
- 1958 - (1) Personnel Management for Supervising Technologists  
(2) Pediatric Radiography - Denver, Colorado, conducted by The American Society of Radiological Technologists.
- 1959 Institute for Supervisory Radiological Technologists. Conducted by The American College of Radiology., The American Registry of X-Ray Technology, American Hospital Association, New York.
- 1960 - Institute for Supervising Radiologists Technologists. Kansas City Medical Center. Conducted by the same Organizations as in 1959.
- 1961 - Anatomy, Physiology, Pathology and Radiology of the Alimentary Tract. Refresher course presented by the Department of Radiology, Faculty of Medicine, McGill University, Canada.
- 1965 - Pediatric Radiology - Refresher Course, J.S. Dunbar, M.D. Chicago. Illinois.  
(1) Focusing your Mathematical Image - Refresher Course, Lester A. Lester A. Bechlund, M. Ed., Chicago, Illinois.  
(2) Advanced Education for Supervisory Technologist, 15th Mid Eastern Conference, Atlantic City, New Jersey.
- 1966 - (1) Departmental Management - Refresher Course, James R. Feldman, B.S., R.T. Boston, Massachusetts.  
(2) Cerebral Angiography - Refresher Course, Albert Ring, M.D., Boston, Massachusetts.

OTHER TRAINING

- 1966 - Nuclear Medicine. Refresher Course by the Maryland Society of Radiological Technologist, Siani Hospital, Baltimore, Maryland - 30 hours.
- 1966 - Pediatrics Radiology, The American Society of Radiologic Technologist - Aemand E. Brodeur, M.D., Boston, Massachusetts.
- (Certificates were awarded in all of the above courses)
- 1967 - Radiation Therapy Technology at Siani Hospital - 25 hours, Baltimore, Maryland.
- 1968 - (1) Applied Principles of Teaching, Andrew M. Doyle, Ph.D.  
(2) Pediatric Radiography, John L. Quinn, M.D. Los Angeles, California.
- 1968 - Nuclear Medicine - Conducted by the Maryland Society of Radiological Technologist, Presented by Harry L. Berman, M.D. and Robert Hiscock, Department of Radiology, Siani Hospital, Baltimore, Maryland.
- 1968 - Radiation Protection - The Maryland Society of Radiology Technologist, Edward J. Hubar, R.T
- 1969 - (1) Principles of Business Adminstration, Jack Chapiro, M.D, C.Pa., Atlanta, Georgia.  
(2) Basic Principles of Teaching, II - Robert Strukoff, B.A., R.T.
- 1969 - Pathology and the Radiologic Technologist - 18th Mid Eastern Conference of Radiology Technologist - Philadelphia, Pennsylvania.
- 1970 - Pediatric Radiography - The American Society of Radiologic Technologist - Armond E. Prodeur, M.D.
- 1970 - (1) Film Critique - Conducted by the Maryland Society of Radiologic Technologist.
- 1970 - (2) Basic Course in Personnel Administration - The American Society of Radiologic Technologist.
- 1971 - (3) Introduction to Personnel Management - The District of Columbia Department of Human Resources 40 hours.
- 1970 - (4) Improving your Vocabulary - The Catholic University of America.
- 1971 - (5) Review of English Grammer - The Catholic University of America, Washington, D.C.



## OTHER TRAINING

- 1971 - Radioisotope Orientation Program: Training Seminar on Radioisotopes by Squibb Co. Division of Nuclear Medicine. Oct. 1971.
- 1972 - Development in Middle Management - The American Society of Radiologic Technologist - Victor M. Gary Ed.D.
- 1973 - (1) New Radiation Safety Laws, John Villi Forth. Bureau of Radiological Health, Rockville, Maryland.  
(2) The Use of Contrast Media in Pediatric Radiology Massoad Majd, M.D, Associate Professor of Radiology and Pediatrics, George Washington University School of Medicine - Washington, D.C.
- 1974 - Practical Approach to Special Procedures - The American Society of Radiologic Technologist - Presented by John E. Collinan, Jr., R.T. FASRT.  
  
Appointment to Advisory Board, Health Technology Department, Washington Technical Institute.
- 1975 -76 Unable to attend Training because of illness.
- 1977 - (1) Quality Control Workshop - Fairfax Hospital Falls Church, Virginia - Presented by Mr. William Bunnell, R.T., B.S., M.S.  
(2) Seminar on special procedures, District of Columbia Society of Radiologic Technologists - Washington, D.C. - January 1977.
- 1977 - "Instruction Techniques in Radiation Protection" American Society of Radiologic Technologists. Graduate Course - Washington, D.C
- 1977 - Instructional Techniques in Radiation Protection American Society of Radiologic Technologists. Graduate Courses, June 20-21, 1977, Washington, D.C.
- 1978 - (1) How to Establish a Continuing Education - Program in Department of Radiology. Anahiem, California - July 1978.  
(2) Insight - A Budget Management Seminar - American Society - Radiological Technologist, Anahiem, California - July 1978.
- 1978 - Johns Hopkins University - Evening College. "Basic Diagnostic Ultra Sound", November 14 - March, Baltimore, Maryland.

OTHER TRAINING

- 1978 - "Fourth Generation CT Scanning", Johns Hopkins Medical Institutions, Office of Continuing Education Nov. 13-14, Baltimore, Maryland.
- 1978 - Annual Meeting of the American Society of Radiologic Technologists Anaheim, California - Graduate Course in Radiation Biology.
- 1979 - Quality Control Steps Seminar, Eastman Kodak Company Health Sciences Markets Division - June 4-8.
- 1980 - Mid-Eastern Conference of Radiologic Technologist.  
(1) Radiation Biology - Chery L. M. Smith  
(2) X-Ray Physics and Circuitry - Thomas Picaoli  
Cherry Hill, New Jersey - Oct. 30 - Nov. 1.
- 1981 - Basic Radiological Health by Health Physics - Baltimore Washington Chapter and The Bureau of Standards - Gaithersburg, Maryland - December 2-3, 1981.
- 1982 - Radiation Safety Specialist Training, Oklahoma State University, Division of Engineering Technology and Architecture - Tulsa, Oklahoma - March 3-12.
- 1983 - Radiation Safety In The Laboratory, U.S. Department of Health and Human Service, National Institute of Health, Washington, D.C. - March 16.
- 1983 - Inovative Trends In Public Health, Virginia Public Health Association - Annual Meeting with Metropolitan Washington Public Health Association - Hyatt Regency March 20-22.
- 1983 - Is the technologist responsible for informing patients of Radiation Safety and Protection - Mid-Eastern Conference of Radiological Technologists - Oct. 13-16. Commander James Spahn - National Council on Radiation Protection, Washington, D.C., Philadelphia, PA.
- 1983 - Radioactive Waste Seminar/Workshop, Radiation Service Organization - Ramada Inn, Calverton, Maryland. Dec. 9.
- 1966 - Radiological Health for Radiologic Technologists - Conducted by the Division of Radiological Health, USPHS, Rockville, Maryland - 40 hours.

Professional Affiliations:

American Registry of Radiological Technologists.

American Society of Radiological Technologists.

D.C. Society of Radiological Technologists.

Mid-Eastern Conference Radiological Technologist.

Maryland Society of Radiological Technologist.

American Public Health Association.

Metropolitan D.C. Public Health Association.

Society of Photographic Scientists and Engineers.

American Institute of Ultra Sound in Medicine, Washington, D.C.  
Chapter.

Board of Directors United Way National Capital Area.

Phi Beta Sigma Fraternity.

## AWARDS

- 1971 -72 Past Presidents Plaque - D.C. Society Radiologic Technologist.
- 1972 -73 Past Presidents Plaque - Mid-Eastern Society.
- 1974 - Genevine Scott Award for Technologist of the year.
- 1975 - Ada Drummon Award for Meritous Service to D.C. Society.
- 1981 - Plaque - Mid-Eastern Past Board Chairman.
- 1981 - Bernice Post Award for Exceptional Service to the Mid-Eastern Conference to the Professional Community and Humanity.
- 1981 - Commemorative Lecture Honoring Technologist of the Year.
- 1982 - In support of Public Education, Floretta Dukes McKenzie, Superintendent of Schools - D.C. Public Schools.
- 1982 - Excellence Performance Award - D.C. General Hospital.
- 1983 - Life Membership - D.C. Society of Radiologic Technologist.
- 1983 - Excellence Performance Award - D.C. General Hospital.

## Hobbies

Golf  
Fishing



## NUCLEAR MEDICINE EQUIPMENT

GAMMA-CAMERA: Mfgr.  
Model No.

Dose Calibrator #1: Mediac Model 6362, Serial 209

Dose Calibrator #2: Capintec CRC-22NR, Serial 33563

ADC Medical Model 300 Nuclear Spectrometer  
and Model 201C Uptake Probe  
Model 330C Well Probe

Personnel Work Shield:

Assorted Syringe Shields:

Gamma-Camera Bar Phantom:

### Nuclear Medicine Equipment

Nuclear of Chicago Gamma Camera & Console-Mod 80030, Ser#277

Nuclear of Chicago Collimators-Pin Hole, Organ, Divergine, technetium (low energy), Technetium (high energy).

Picker Collimators-Ultra Fine (high resolution), Technetium (high sensitivity), Pin Hole, Gallium, I-131, Seven Pin Hole.

Sony Trinitron Color TV Ser#026772

ADC Single Arm Thyroid Uptake System with Probe, Spectrometer, & Isotope Well. Stand-Mod IV, Ser#180883326, Probe-Mod 201C, Serial #210983004, Spectrometer-Mod 300, Ser #200183017, Well-Mod 3300C, Ser #170983004. Cambridge 3 Channel EKG Machine with Monitor & Defibrillator Mod 3038/2, Ser #02894, Safeguard 3, Ser #1045 EDC Cardiac Stress Table with Ergometer Mod 8407, Ser#85.

Nuclear of Chicago Dose Calibrator Mod 6362, Ser#209

Capintec Dose Calibrator Mod 000-006-373, Ser#33563

ADAC Computer with Format and Camera Mod 2122-300A, Ser#008036

All of the above equipment is located in Room 2402

### Film Processors

Kodak film processors are located in the following areas:

- |                         |                                  |
|-------------------------|----------------------------------|
| 1. Main X-Ray - M7N     | 5. <u>Nuclear Medicine</u> - M6N |
| 2. Cardiology - M7N     | 6. Operating Room - M6N          |
| 3. Cystology - M6N      | 7. Obstetrics/Gynecology - M6N   |
| 4. Emergency Room - M6N | 8. Pediatrics - M6N              |

A Phillips 610 tabletop model is located in the Dental Clinic.

SURVEY INSTRUMENTS  
&  
PERSONNEL DOSIMETERS

<u>Type</u>	<u>Mfgr</u>	<u>Model No.</u>	<u>mR/hr Scale</u>	<u>Ranges</u>	<u># Units</u>
Beta/Gamma (GM)	Picker	CDV-700	0 to 0.5	X1, X10 X100	1
" " "	OCDM	CDV-700	0 to 0.5	X1, X10 X100	3
Gamma	Victoreen	492	0 to 10	X1, X10 X100	1
Alpha, Beta, Gamma	Victoreen	491	0 to 1	X0.1 to X100	1

Three Personnel Dosimeters, electronic  
Used for brachytherapy applications

1. Victoreen - Model #235-1 - Serial #1433
2. Victoreen - Model #885-1 - Serial #2329
3. Victoreen - Model #885-1 - Serial - 2487



Government of the District of Columbia  
 District of Columbia General Hospital  
 19th Street and Massachusetts Avenue, S.E.  
 Washington, D.C. 20003  
 Telephone (202) 675-5000

<u>Study</u>	<u>Isotope</u>	<u>Chemical Form</u>	<u>Pt. Dosage</u>
Brain Scan	99mTc	DTPA(Sn)	20mCi.
Brain Scan	99mTc	Glucuheptonate	20mCi.
Brain Scan	67Ga	Citrate	3mCi. *
Cisternography	169Yb	DTPA	500uci.
Cisternography	111In	DTPA	500uci.
Thyroid Uptake	131-I	Iodide	10uci.
Thyroid Uptake & Scan	131-I	Iodide	50uci
Thyroid Uptake & Scan	123-I	Iodide	400ucl.
Total Body Scan-Ca.	131-I	Iodide	1- 5mCi.
Thyroid Scan	99mTc-04		1-2mCi.
Parotid Scan	99mTc-04		10mCi.
Salivary Scan	99mTc-04		10mCi.
Pulmonary Scan(perf.)	99mTc	Macroaggregated Albumin	4mCi.
Pulmonary Scan(vent.)	81mKr	Gas	mCi/mins.
Pulmonary Aspiration	99mTc	SAQ.	500uci.
Venogram	99mTc	MAA	2.0mCi/ leg.
Esophageal Emptying	99mTc	S.C.	250uci
Esophageal Emptying	99mTc	DTPA(Sn)	500uci.
LeVeen Shunt	99mTc	S.C.	10mCi.
Gastroesophageal Reflux	99mTc	S.C.	100-300uci.
Liver Spleen Scan	99mTc	S.C.	4mCi.
Bone Marrow Scan	99mTc	S.C.	10mCi.
GI Bleed Scan(active)	99mTc	S.C.	10mCi.
GI Bleed Scan(non-act.)	99mTc	PYP labelled R.B.C.	25mCi.
Meckel's Diverticulum	99mTc-04		5mCi.
Hida	99mTc	Disofenin	5mCi.
Renal Scan	99mTc	DTPA(Sn)	15mCi
Renal Scan	99mTc	DMSA	5mCi.
Renal Scan	99mTc	Glucuheptonate	1-2mCi.
Renogram	131-I	Hippuran	300uci.



Renal Scan	67Ga	Citrate	3mCi.
Myocardial Infarct	99mTc	PYP	15mCi.
Myocardial Infarct	201TI		2mCi.
Ventriculograms	99mTc-04	Labelled RBC'S	25mCi
Bone Scan	99mTc	Diphosphate or Pyrophate	20mCi.
Bone Scan	67Ga	Citrate	3mCi
Total Body Scan	67Ga	Citrate	3mCi.
Testicular Scan	99mTc-04		10mCi.
Cystogram(indirect)	99mTc	DTPA	20mCi
Cystogram(direct)	99mTc-04		1mCi.
Pulmonary(vent.)	99mTc	DTPA Aerosol	30mCi. *

\* Studies to be Done in the Future.

## SEALED SOURCES

FOR DOSE CALIBRATOR TESTING

Amersham Model CTC-VI, Source 4309MA  
5.84 Mci Co-57 on 1/8/81

Amersham International, Product Code CTR.568, Source No. 6086 MA  
5.072 Mci Co-57 ( $\pm 5\%$ ) on 1/June/84

Nes-358, Serial 3580779A-05, Vial Type E  
262 uci Ba-133 on 7/19/79

Nes-356, Serial 3560679A-72, Vial Type E  
198 uci Ces-137 on 7/1/79

Nuclear/Chicago Model 184622, Serial 170, Plastic Rod  
15.1 uci Ra-226 on 11/68

FOR GAMMA-CAMERA TESTING

Nes-8025, Serial 80300681A  
30 uci Au-195 on 6/81

All sealed sources will be routinely leak-tested by wiping  
at 6 month intervals. The testing method will be capable of  
detecting down to 0.005 uci of removable radioactivity.

### IMAGING EQUIPMENT PERFORMANCE TESTS

The gamma-camera will be adjusted and tested once each day it is to be used. The sealed Co-57 flood source will be used for the daily tests. Bar phantom tests will be performed once each week.

The film images resulting from these tests will be filed in the gamma-camera log book. The appropriate camera data will be entered onto each film.

## CALIBRATION OF THE DOSE CALIBRATOR

### DAILY TESTS

Instrument constancy will be tested daily using a calibrated Ce-57 sealed source for the Co-57 and the Tc-99m settings on the Dose Calibrator. The results will be recorded in the Dose Calibrator Log Book. Readings differing from the expected values by more than 5% will be cause for instrument repair.

### QUARTERLY TESTS

Instrument linearity tests will be performed quarterly using a Tc-99m source and with the Dose Calibrator set for response to that radioisotope. The readings will cover the approximate activity range of 20 millicuries to 1 millicurie. Each reading and the time of each reading will be recorded and given to the consulting physicist for analysis.

### SEMI-ANNUAL TESTS

Instrument accuracy tests will be performed semi-annually using sealed calibrated sources of Cs-137, Co-57, Co-60, and Variations greater than 5% from the expected readings will be cause for instrument repair. This testing will be performed by the consulting physicist.

### INSTALLATION TESTING

Instrument dependency upon source volume will be tested only at the time of the instrument initial installation.



## SURVEY INSTRUMENT CALIBRATIONS

A. Routine survey instrument calibration will be performed on each unit annually. In the event that instrument repair is required, recalibration will be performed on the affected unit following that repair. A change of batteries will not constitute repair.

B. Instrument calibrations will be performed by the

Radiation Service Organization  
Laurel, Maryland

under Maryland License No. MD-33-021-01 according to the attached CALIBRATION PROCEDURE sheet.

or by any other properly licensed an authorized person or firm licensed by the NRC or by an Agreement State. Said person or firm will follow the method outline in Appendix D of the current NRC Regulatory Guide 10.8



RADIATION SERVICE ORGANIZATION  
P.O. BOX 419  
LAUREL, MARYLAND 20707

WASHINGTON  
(301) 953-2482

BALTIMORE  
792-7444

## CALIBRATION PROCEDURES

### PORTABLE RADIATION SURVEY INSTRUMENTS

RADIATION SERVICE ORGANIZATION is authorized by the State of Maryland to calibrate portable radiation survey instruments. All calibration work is done using radioactive sources. When electronic means are used to verify the accuracy of counting circuits, a final calibration is done using a radioactive source to match the detector. All radioactive sources used at Radiation Service Organization have been calibrated by the National Bureau of Standards or are traceable to NBS standards. Presently, the following radioactive sources are used in instrument calibration:

Cesium-137	662 keV
Cobalt-60	1250 keV (effective)
Sodium-22	1274 keV
	511 keV

In addition to the above, Radiation Service Organization calibrates alpha detection instruments using Plutonium-239, Uranium-235 and Americium-241 alpha standards. Beta and neutron calibrations can be arranged on a special basis.

All incoming survey instruments are checked for contamination, cleaned as necessary and thoroughly inspected for any damage or defects prior to calibration. Batteries are checked and changed as necessary--battery terminals are also inspected and cleaned. The probe is then checked for response to radiation.

If a survey instrument is found to be defective, Radiation Service Organization will attempt to repair any minor problems. Any defects which involve replacement of components and extensive labor will be called to the customer's attention for authorization prior to repair. Whenever possible a written estimate will be provided upon request.

Following initial checkout and/or repair, the radiation survey instrument is then calibrated\* using a traceable standard source. Survey instruments are checked at a minimum of two points on each scale (20/80% or 1/3 / 2/3 of full scale) for linear scales and one point per decade on logarithmic scales. In those cases where we cannot accurately calibrate a range or scale i.e. very high ( $>10$  R/hr.) and very low ( $<100$  uR/hr.) it will be noted on the calibration report.

Calibration points which are found to be accurate within  $\pm 10\%$  will be reported as observed. If a calibration point falls within  $\pm 20\%$ , the scale may be used with a calibration graph attached to the instrument. In these cases, every reasonable attempt will be made to adjust the instrument to the most accurate reading obtainable.

Following this calibration, a calibration label is placed on the instrument and a calibration report is prepared. The valid period of calibration is stated as three or six months, depending on the customer's license requirements.

\*....according to the U.S. Nuclear Regulatory Commission's Regulatory Guide 10.8 Appendix D.

**Maryland License No. MD-33-021-01**

**expires Aug. 31, 1983**

**license extended to \_\_\_\_\_**

Amended In Its Entirety

To Read As Follows

License Number

MD-33-021-01

Expiration Date

March 31, 1989

## PERSONNEL TRAINING PROGRAM

### I. Non-Nuclear Medicine Personnel

All non-radiation workers associated with the nuclear medicine program will, upon initial employment, and annually thereafter, be shown the area used for nuclear medicine and will be given an overview of the program. They will be acquainted with the standard "Caution-Radioactive Materials" sign and its significance. They will be instructed that they are not to handle any packages or containers, including any incoming shipments, or waste baskets bearing this sign. They will be introduced to the Radiation Safety Officer and instructed that questions concerning radiation safety should be directed to that person.

### II. Nuclear Medicine Personnel

At the time of initial employment, and annually thereafter, the Radiation Safety Officer will review with these persons the various radiation safety rules and procedures, as well as the conditions of the by-product materials license. Each review will include discussions of:

- A. Proper use, storage, and handling of personnel radiation monitoring devices (i.e. film badges, ring badges)
- B. The method of ordering radioisotopes.
- C. The procedure for accepting patients for nuclear medicine studies.
- D. The inspection of radioisotope shipments.
- E. The administration of the radioisotopes to the patients
- F. Actions required when spills occur.
- G. Proper use and testing of the
  1. dose calibrator
  2. survey instrument
  3. gamma-camera
- H. Proper storage of radioisotopes
- I. Laboratory contamination surveys
- J. The recording of all of the above tests, surveys, and procedures.



INSTRUCTIONS FOR  
HOUSEKEEPING PERSONNEL

Housekeeping personnel will be instructed that they may not enter the Hot Lab for any reason. The Hot Lab will be identified so that they will be aware of its location.

Housekeeping personnel will be instructed that they may not handle or empty containers bearing the "Caution - Radioactive Materials" sign. They will be shown a typical sign and will be made aware of the significance of the symbol and colors on such a sign.

## RADIATION SAFETY RULES FOR THE LABORATORY

### Nuclear Medicine Personnel WILL:

1. wear disposable gloves and lab coats or aprons while handling radioactive materials.
2. use syringe shields for the routine preparation of patient doses and for the administration of those doses.
3. wear the assigned radiation film badges and ring badges while working with and around radioactive materials.
4. store and transport radioactive materials in plainly identified and properly labeled containers having shielding adequate for the amount and type of material therein.
5. dispose of all radioactive waste in the manners outlined in the Waste Disposal instructions.
6. cross-check each patient dose prior to administration to assure that the radionuclide, the chemical form, the activity of the dose, the physician's request, and the patient being dosed are correct.
7. monitor the hands and clothing for radioactive material contamination prior to leaving the lab for lunch and at the end of the workday.

### Nuclear Medicine Personnel WILL NOT:

1. pipette by mouth.
2. leave unmarked containers of radioactive materials unattended in the lab.
3. leave containers of radioactive materials in any location which is accessible to non-authorized persons.
4. eat, drink, or smoke in the lab.
5. store food, drink, or cosmetics in the lab.

## AREA SURVEY PROCEDURES

1. Preparation and injection areas will be surveyed and, if necessary, decontaminated immediately upon suspicion of a radioactive material spill. Otherwise, these areas will be surveyed on a weekly basis. An appropriately low-ranged survey instrument will be used.
2. All laboratory areas, including those used for waste and supply storage, will be surveyed weekly.
3. The surveys will consist of:
  - a) gamma-ray exposure rate measurements in selected regions of the rooms.
  - b) contamination searches of surfaces likely to be contaminated, including the floors. These searches will be in the form of:
    - 1) direct instrument searches where the background level is low enough (0.02 mR/hr, or less) to permit the easy detection of contamination.
    - 2) water-dampened paper towel wipes of surfaces located in regions having background radiation levels significantly above 0.02 mR/hr. These wipes will be taken to and inspected in locations having background levels of the order of 0.02 mR/hour, or less.
4. Permanent record of each survey and of any subsequent decontamination procedures will be kept. The record will include:
  - a) identification of the areas and surfaces searched.
  - b) date of the search
  - c) name or initials of the surveyor.
  - d) identification of the instrument used.
  - e) notation of the type of search (direct instrument or wipe).
  - f) exposure rates (in mR/hour) and countrates (in CPM) observed, including that of background.
  - g) corrective action taken, if any is necessary.
5. Corrective action will be taken for any surface area or wipe showing a countrate of 200 CPM or more. Gamma-ray exposure rates resulting from stored radioactive materials will not be permitted to exceed 0.25 mR/hour in unrestricted areas, nor 5.0 mR/hour in restricted areas.

EMERGENCY PROCEDURES  
for  
SPILLS

MINOR SPILLS

1. Notify persons in the area that a spill has occurred.
2. Prevent the spread of the spill by covering it with absorbent paper and by restricting the occupancy at the spill site.
3. Clean up the spill using absorbent paper and paper towels while wearing disposable plastic gloves. Place all cleaning materials and gloves into a plastic bag. If not all of the radioactive contamination can be removed, cover the contaminated areas with absorbent paper and mark the paper with warning signs.
4. Survey the area, clothing, shoes, and hands with the portable survey meter.
5. Report the incident to the Radiation Safety Officer and record the details of the spill and the clean up in the Lab Survey Log Book.

MAJOR SPILLS

1. Clear the immediate area and notify all persons not involved in the clean up to vacate the room.
2. Take all necessary measures to prevent the spread of the spill. If a liquid is involved, cover it with absorbent paper or paper towels.
3. Report the incident to the Radiation Safety Officer immediately.
4. Under the supervision of the Radiation Safety Officer, proceed to clean up the spill. Use shoe covers and plastic gloves. Bag all contaminated materials. Place identifying warning labels on the bags and store the bags in a secure and shielded area.
5. Check all personnel involved for the contamination of clothing, hands, shoes, face and neck. Remove all contaminated clothing and store in plastic bags for decay. If skin contamination is evident, flush the skin thoroughly with water and then wash with mild soap and lukewarm water.
6. Record the details of the incident and the clean up in the Lab Survey Log Book.



INSPECTION OF INCOMING SHIPMENTS  
of  
RADIOACTIVE MATERIALS

- I. All shipments will be monitored for surface contamination and the external radiation levels of gamma-ray exposure rate within 3 hours of receipt, if received during normal working hours. If received after normal working hours, the monitoring will be done within 18 hours of the receipt.

II. Inspection Procedure

- A. Visually inspect the package for signs of physical damage (puncture or crushing) and for indication of liquid leak. If damage is noted or leak is suspected, stop the procedure and notify the Radiation Safety Officer.
- B. Measure and record the maximum gamma-ray exposure levels
  - 1. at 3 feet from the surfaces of the package. If it exceeds 10 mR/hour, stop the procedure and notify the RSO.
  - 2. at the surfaces of the package. If it exceeds 200 mR/hour, stop the procedure and notify the RSO.
- C. Put on disposable plastic gloves.
- D. Open the outer package and extract the packing slip.
- E. Verify that the packing slip and the ordered material are in agreement in all respects.
- F. Verify that the inner package shows no indication of damage, accidental opening, or leaking. Stop the procedure and notify the RSO if there is any such indication. If not, remove the inner package and verify that the data on its label conform to that of the packing slip.
- G. Wipe the surface of the inner container with a water-dampened paper towel and inspect this wipe for indication of removable radioactivity using a thin window GM detector/survey meter set to its most sensitive range. Record the
  - 1. reading of the wipe
  - 2. reading of a test source held at the GM detector window
  - 3. the shipment ID
  - 4. date of this monitoring
  - 5. your initials
- H. Store the radioactive materials in an appropriately shielded and secure location.
- I. Enter the radioactive material data into the laboratory records for inventory purposes.



INSPECTION OF INCOMING SHIPMENTS  
of  
RADIOACTIVE MATERIALS

III. Discarding of Shipping Boxes & Packing Materials

- A. Inspect the material to be discarded for the presence of radioactive material contamination. Use the thin window GM detector and have the instrument set for its most sensitive range.
- B. Obliterate all radiation signs and radioactive material labels.
- C. If no radioactive material contamination is noted, the material may be discarded in the ordinary laboratory trash route. Otherwise, it must be handled as radioactive waste.

## RADIOACTIVE SHIPMENT RECEIPT REPORT

1. P.O. No. \_\_\_\_\_ Survey Date \_\_\_\_\_ Time \_\_\_\_\_  
Surveyor \_\_\_\_\_
2. CONDITION OF PACKAGE  
\_\_\_\_\_ O.K. \_\_\_\_\_ Punctured \_\_\_\_\_ Status \_\_\_\_\_ Wet  
\_\_\_\_\_ Crushed \_\_\_\_\_ Other \_\_\_\_\_
3. RADIATION UNITS OF LABEL: \_\_\_\_\_ Units (mR/hr)
4. MEASURED RADIATION LEVELS:  
a. Package surface \_\_\_\_\_ mR/hr  
b. 3 feet or 1 meter from surface \_\_\_\_\_ mR/hr
5. DO PACKING SLIP AND VIAL CONTENTS AGREE?  
a. Radionuclide \_\_\_\_\_ yes \_\_\_\_\_ no, difference \_\_\_\_\_  
b. Amount \_\_\_\_\_ yes \_\_\_\_\_ no, difference \_\_\_\_\_  
c. Chem Form \_\_\_\_\_ yes \_\_\_\_\_ no, difference \_\_\_\_\_
6. WIPE RESULTS FROM:  
a. Outer \_\_\_\_\_ CPM = \_\_\_\_\_ DPM  
eff = ( )  
b. Final source container \_\_\_\_\_ CPM = \_\_\_\_\_ DPM  
eff = ( )
8. SURVEY RESULTS OF PACKING MATERIAL AND CARTONS \_\_\_\_\_ mR/hr, CPM
9. DISPOSITION OF PACKAGE AFTER INSPECTION \_\_\_\_\_
10. IF NRC/CARRIER NOTIFICATION REQUIRED, GIVE TIME, DATE, AND PERSONS NOTIFIED.

Signature

Date

AFTER-HOURS DELIVERY OF RADICISOTOPES

see pages 16 & 17 of the DCGH Radiation Protection  
Manual

## Radioactive Material

### WASTE DISPOSAL

#### I. Tc-99m Contaminated Syringes

Individual prepared patient doses are received from the supplier. The emptied syringes and those containing unused Tc-99m doses are returned to the supplier via the supplier's courier.

#### II. Other Tc-99m Contaminated Waste

This waste will include disposable gloves, needles, alcohol wipes, absorbent paper pads, paper towel wipes, etc.

The contaminated material will be stored in an assigned, appropriately marked, container located in the Hot Lab. When the container becomes filled, it will be sealed with tape, dated, and identified as containing only Tc-99m waste. It will be retained for at least 10 half-lives (3 days) after having been sealed.

After the 10 half-life period, the container will be opened and the contents inspected for indication of the presence of remaining radioactivity. The survey instrument will be used while set at its most sensitive range and the end window cap of the detector will be removed. Any waste showing a count rate distinguishably above that of room background will be retained for additional decay. Waste for which the activity cannot be distinguished from background will be disposed of in the normal trash route after all radioactive material signs on it have been obliterated.

Record will be made of each disposal event. That record will include:

1. identification of the survey instrument
2. response of the survey instrument to a test source.
3. date the container was sealed and unsealed.
4. the fact that only Tc-99m was involved.
5. initials of the person performing the disposal.

A copy of these instructions will be attached to the inside cover of the WASTE DISPOSAL LOG BOOK.

2  
Radioactive Material

WASTE DISPOSAL

III. Non-Tc-99m Waste with Half-Lives less than 30 days

All waste of this category will be stored in an appropriately marked and covered container. When the container is filled, it will be sealed with tape. The date of the sealing and an indication of the types of radioactive materials in it will be marked on it. The container will remain sealed for at least 10 half-lives of the longest lived material present.

At the completion of the 10 half-life period, the waste will be surveyed and handled as outlined in Part II, page #1.

IV. Radioactive Waste with Half-Lives greater than 30 days

All waste of this category will be stored in an appropriately marked covered container. When a suitable quantity is obtained, the material will be assigned to a licensed commercial disposal firm for proper disposal.



BIOASSAY OF PERSONNEL  
working with large quantities of I-131

Personnel involved in the preparation and the administration of quantities of I-131 exceeding 10 millicuries, whether in liquid or in capsule form, will be examined for thyroid uptake of the iodine at approximately 24 hours after the procedure.

The thyroid uptake of each person will be determined in the manner normally used to measure patient thyroid uptake of iodine. The count rate of a diagnostic I-131 capsule or a simulated I-131 capsule will be used to compute the personnel uptake in microcuries.

Written records will be maintained and will include all pertinent data.

Radiation Safety Precautions  
for Personnel Attending Patients Treated  
with Radioactive Iodine (I-131)

25

Patient \_\_\_\_\_ Room # \_\_\_\_\_  
Responsible Physician \_\_\_\_\_ Telephone # \_\_\_\_\_

Dose \_\_\_\_\_ mc# Form liquid/capsule  
Date & Time administered \_\_\_\_\_

Permissible Time for Nursing Duties (each nurse)

<u>Location</u>	<u>Time</u>	
At bedside	_____	minutes/hours
6 feet from patient	_____	minutes/hours
At doorway	_____	hours

Rules

1. No pregnant persons or persons under the age of 18 years may enter the room.
2. Hospital personnel entering the room must carry a pocket dosimeter. The readings of the dosimeter must be recorded upon entry and upon exit.
3. Visitors may stay in the room for \_\_\_\_\_ hour each day but must remain away from the area delineated by the warning tape placed on the floor.
4. The patient must remain in his room until the radiation safety precautions are terminated. Except for trips to the toilet, the patient must remain well within the warning tape area.
5. Urine will be collected only if requested (Collect/do not collect) by the Radiation Safety Officer or the responsible physician.
6. All soiled linen and clothing will be bagged and held for release by the RSO.
7. Personnel must wear rubber or plastic gloves when handling urinals, bed pans, emesis basins, or soiled linen or clothes.
8. Disposable dishes, cups, and eating utensils will be used by the patient.
9. If the patient's condition requires his or her removal from the assigned room (emergency surgery, etc.), the RSO and the responsible physician must be notified immediately.
10. The patient may be discharged only after consultation with the RSO or the responsible physician.
11. Upon discharge or removal of the patient from the assigned room, that room may not be cleaned until it is released by the RSO or his designate.

\* Radiation Safety Precautions need not be instituted for patients receiving 10.0 millicuries of I-131 or less.

RADIATION SAFETY INSTRUCTIONS  
TO  
OUTPATIENTS CONTAINING THERAPEUTIC QUANTITIES OF  
I-131

Patients containing more than 30 Millicuries of I-131 must be retained as in-patients. Those in whom the total quantity is 30 Millicuries or less, may be released from the Hospital if the radioisotope administering physician or the Radiation Safety Officer consider that the circumstances at the patient's home are not likely to present unacceptable radiation exposures to other persons at that home.

Patients permitted to return home will be instructed to:

1. maintain a distance of at least 6 feet from children and pregnant persons for the first 10 days following the return home.
2. practice more than the ordinary cleanliness with respect to urination.
3. notify the nuclear medicine physician if it is necessary to be admitted to any hospital within 10 days following the first return home.

## BRACHYTHERAPY SOURCES

SOURCE INVENTORY

All sources are stainless-steel capsules containing Ces-137 and are used for patient intracavitary treatment.

<u>Mfgr</u>	<u>Model No.</u>	<u>Nominal Activity*</u>	<u>#Capsules</u>
Nucl. Assoc.	67-800 series	10 mgms equiv.	1
" "	" "	20 " "	3
" "	" "	30 " "	1
" "	" "	40 " "	1
3M Company	6D6C-CA	10 mgms equiv.	1
" "	" "	15 " "	2

Total activity = 180 mgms equivalent to Radium-226  
= 452 millicuries Ces-137

ROUTINE LEAK-TESTING

Routine leak-testing will be performed at no less than 6 month intervals, using a method of wipe tests which are capable of detecting less than 0.005 microcuries of removable Ces-137.

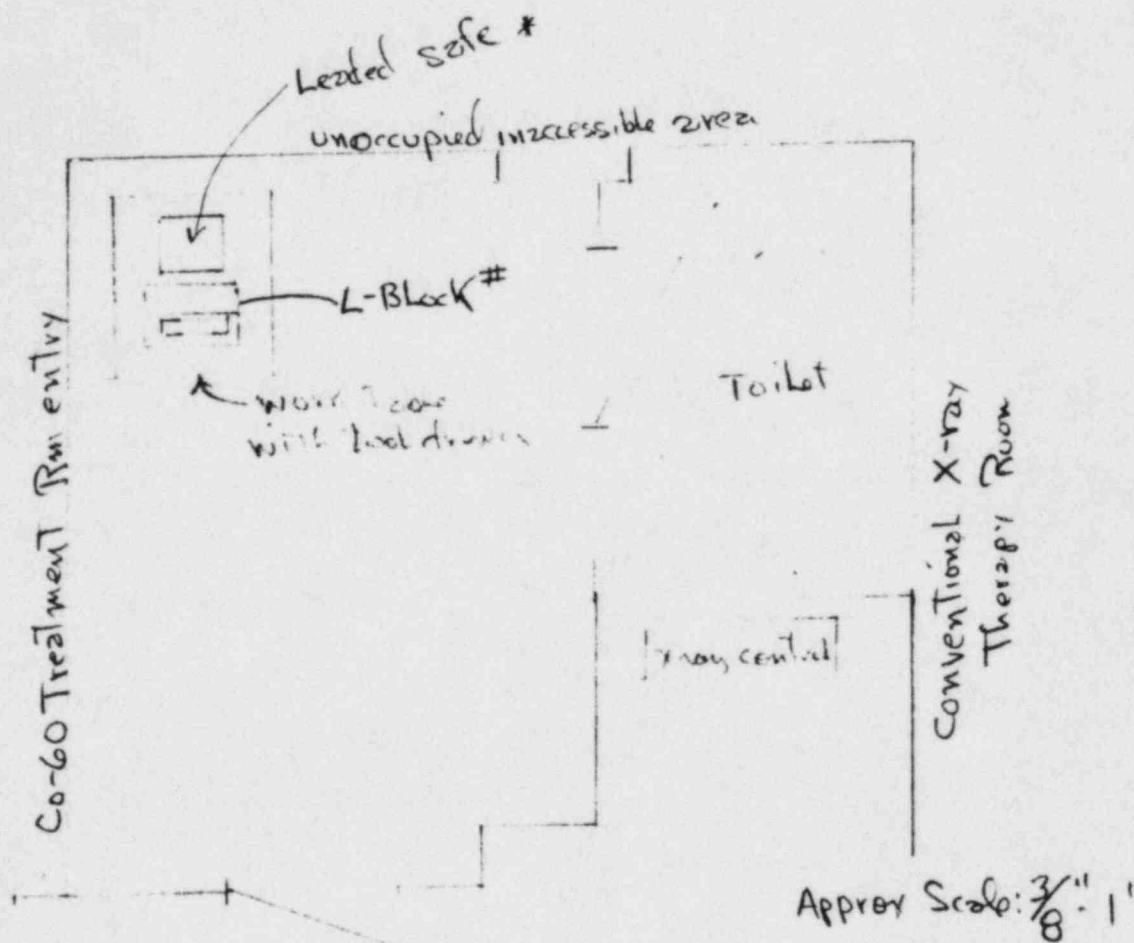
ROUTINE SOURCE INVENTORY

Routine source inventory will be performed at no less than monthly intervals. An inventory will also be performed following the completion of each patient application. Written record will be made of each inventory.

INSTRUCTIONS FOR PERSONS ATTENDING PATIENTS BEING TREATED WITH  
BRACHYTHERAPY SOURCES

Refer to pages 35 & 36 of the DCGH Radiation Protection Manual (1983)

# Brachytherapy Sources Storage & Preparation Room



\* Lead safe: Radium Chemical Co.  
4 drawer (4" Pb) Lockable unit

# Standard 2" Pb radium L-Block  
with leaded glass view window

6/84



General Radiation Safety Precautions  
in the use of  
Sealed Brachytherapy Sources

I. Hospitalization

- A. Patients receiving permanent implants of sealed sources, such as radon seeds or I-125 seeds shall be hospitalized until the total activity is less than 30.0mc. No patient having more than 10.0mc of activity will be released from the hospital without the consent of the Radiation Safety Officer.
- B. Patients receiving temporary implants or applications of sealed sources will be hospitalized until the sources are removed.
- C. Hospitalized patients will be confined to a private room and will be restricted to the portion of the room which will ensure that the exposure rates in adjoining unrestricted areas are at levels less than those specified in Section 20.105(b), 10CFR20. The patient's room will be posted in accordance with Section 20.203, 10CFR Part 20.

II. Surveys

- A. Exposure rate surveys will be made within and around the patient's room at the earliest practical time. Records shall be made of these observations and will be transmitted to the Radiation Safety Officer, or his designate, who will then post the permissible exposure times for personnel at the bedside, 6 feet from the bedside, and at the entrance to the room.
- B. At the conclusion of the treatment, a survey shall be made to ensure that the sources have all been recovered. All signs and postings pertaining to the use of radioactive materials will be removed from the patient's room and adjoining areas.

III. Instructions to Nursing Personnel

The physician applying the brachytherapy sources and the Radiation Safety Officer are responsible for the notification of nursing personnel that radiation safety precautions have been instituted. Written notice shall be entered into the patient's chart and verbal notice shall be given to the head nurse. The form "Instructions for Persons Attending Patients being Treated with Brachytherapy Sources" will be posted at the door to the patient's room. At the removal of the sources, notification of the termination of the radioactive precautions shall be written into the patient's chart and verbal notice will be given to the head nurse. The Radiation Safety Officer will also be notified.

# BUILDING N° 24 NORTH

SCALE: 1/8" = 1'-0"

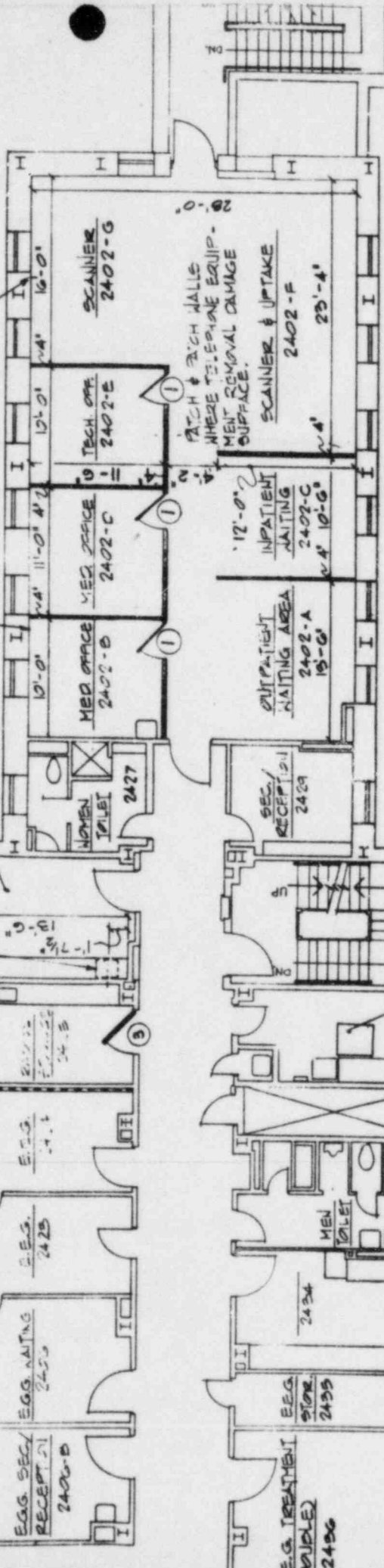
INSTALL LEAD BACK  
GYP. DO. & SECURE  
TO 1" x 2" FURRED  
STRIPS AND EX. WALL

INSTALL SINK & ATTACH  
TO COUNTER. STAINLESS  
STEEL COUNTER/SINK  
FROM OLD AD.

HOT RADIAL LABORATORY  
2404

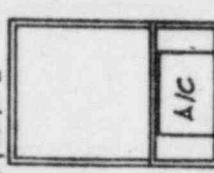
PATCH & PAINT

LAB.  
SCALE 1/8"



MATCH EX. HT. OF WINDOW  
MATCH EX. HT. OF WINDOW  
FOR A.C. UNIT CUT OUT  
DIMENSION SEE C.O.T.R.  
OR DESIGNER

1/2" PLY BOARD  
SECURE WITH LIGHT  
ADHESIVE AND CAULK  
ALL EXPOSED AREAS  
TO PREVENT LIGHT  
PENETRATION



PROVIDE TEMPORARY  
LIGHT PROOF BARRIER  
OVER WINDOW & AROUND  
AIR CONDITIONER

# BUILDING N° 24 SOUTH

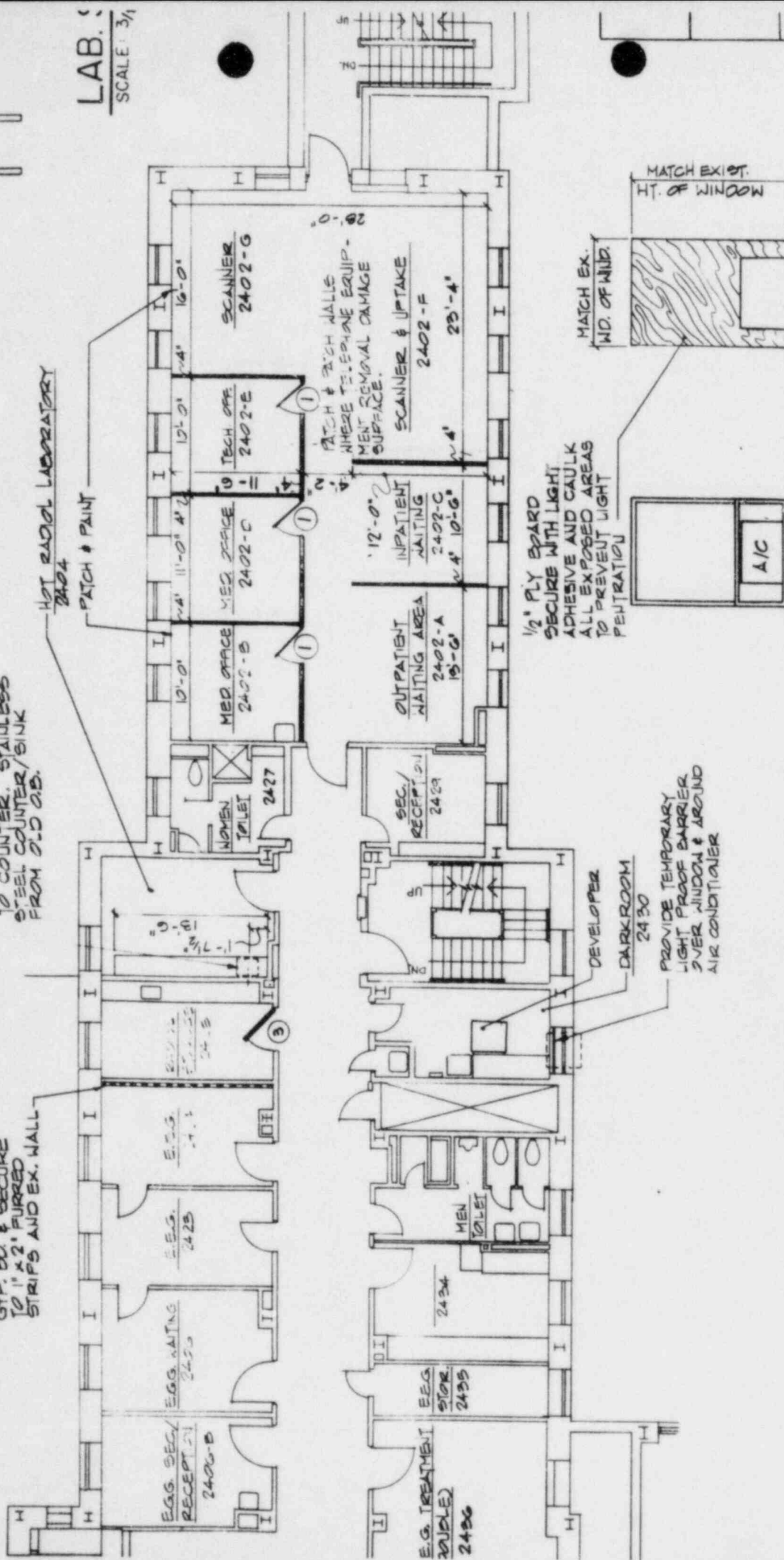
SCALE: 1/8" = 1'-0"

# BUILDING N<sup>o</sup> 24 NORTH

SCALE: 1/8" = 1'-0"

INSTALL LEAD BACK  
GYP. DO. & SECURE  
TO 1" X 2" FURRED  
STRIPS AND EX. WALL

INSTALL SINK & ATTACH  
TO COUNTER. STAINLESS  
STEEL COUNTER/SINK  
FROM OLD O.B.



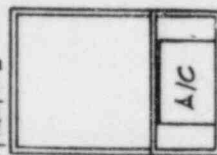
# BUILDING N<sup>o</sup> 24 SOUTH

SCALE: 1/8" = 1'-0"

PROVIDE TEMPORARY  
LIGHT PROOF BARRIER  
OVER WINDOW & AROUND  
AIR CONDITIONER

DEVELOPER  
DARK ROOM  
2430

1/2" PLY BOARD  
SECURE WITH LIGHT  
ADHESIVE AND CAULK  
ALL EXPOSED AREAS  
TO PREVENT LIGHT  
PENETRATION



MATCH EX.  
HT. OF WINDOW

MATCH EX.  
WD. OF WIND.

FOR A.C. UNIT CUT OUT  
DIMENSION SEE C.O.T.R.  
OR DESIGNER