

NRC FORM 313M (9-81) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION	Approved by OMB 3150-0041 Expires 9-30-83
	APPLICATION FOR MATERIALS LICENSE - MEDICAL	

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 Department of the Army USAMEDDAC Ireland Army Community Hospital Fort Knox, Kentucky 40121-5520 TELEPHONE NO.: AREA CODE (502) 624-1143	1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED (If different from 1.a.) INCLUDE ZIP CODE Department of the Army USAMEDDAC Ireland Army Community Hospital Fort Knox, Kentucky 40121
2. PERSON TO CONTACT REGARDING THIS APPLICATION 1LT John G. Manfre, Jr., MSC Radiation Safety Officer TELEPHONE NO.: AREA CODE (502) 624-1143	3. THIS IS AN APPLICATION FOR: (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. 16-03657-01
4. INDIVIDUAL USERS (Name individuals who will use or directly supervise use of radioactive material. Complete Supplements A and B for each individual.) As approved by the Radiation Control Committee	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.) 1LT John G. Manfre, Jr., MSC Radiation Safety Officer

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE Changes only noted-All else remains the same.			
RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	ADDITIONAL ITEMS: MARK ITEMS DESIRED "X"
10 CFR 31.11 FOR IN VITRO STUDIES	X	5 Millicuries	IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM X 100 mCi
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 mCi
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED	PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.
10 CFR 35.100, SCHEDULE A, GROUP III	X	5000 mCi	GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.
10 CFR 35.100, SCHEDULE A, GROUP IV	X	AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA X 1000 mCi
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
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
See attached sheet			
<div style="display: flex; justify-content: space-between;"> 8507170581 850703 REG LIC30 16-03657-01 PDR </div>			

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. Oct 30 Rev 1 Date: _____

7. MEDICAL ISOTOPES COMMITTEE		15. GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL (Check One)	
<input checked="" type="checkbox"/>	List of Positions Attached; and		Appendix G Rules Followed; or
	Duties as in Appendix B; or _____ (Check One)	<input checked="" type="checkbox"/>	Equivalent Rules Attached See SOP, Tab J
<input checked="" type="checkbox"/>	Equivalent Duties Attached See Appendix D(40-5)	16. EMERGENCY PROCEDURES (Check One)	
8. TRAINING AND EXPERIENCE			Appendix H Procedures Followed; or
<input checked="" type="checkbox"/>	Supplements A & B Attached for Each Individual User; and	<input checked="" type="checkbox"/>	Equivalent Procedures Attached See 40-5, Appendix G H; See SOP, Tab Q
<input checked="" type="checkbox"/>	Supplement A Attached for RSO. Also Appendix E See 40-5	17. AREA SURVEY PROCEDURES (Check One)	
9. INSTRUMENTATION (Check One)		<input checked="" type="checkbox"/>	Appendix I Procedures Followed; or See SOP, Tab D
	Appendix C Form Attached; or		Equivalent Procedures Attached
<input checked="" type="checkbox"/>	List by Name and Model Number See separate attachment, Tab B	18. WASTE DISPOSAL (Check One)	
10. CALIBRATION OF INSTRUMENTS			Appendix J Form Attached; or
	Appendix D Procedures Followed for Survey Instruments; or _____ (Check One)	<input checked="" type="checkbox"/>	Equivalent Information Attached See SOP, Tab G
<input checked="" type="checkbox"/>	Equivalent Procedures Attached; and (Tab K, SOP)	19. THERAPEUTIC USE OF RADIOPHARMACEUTICALS (Check One)	
<input checked="" type="checkbox"/>	Appendix D Procedures Followed for Dose Calibrator; or See SOP, Tab L (Check One)		Appendix K Procedures Followed; or
	Equivalent Procedures Attached	<input checked="" type="checkbox"/>	Equivalent Procedures Attached See SOP, Tab F
11. FACILITIES AND EQUIPMENT		20. THERAPEUTIC USE OF SEALED SOURCES	
<input checked="" type="checkbox"/>	Description and Diagram Attached See Diagram Tabs		Detailed Information Attached; and N/A
12. PERSONNEL TRAINING PROGRAM			Appendix L Procedures Followed; or _____ (Check One)
<input checked="" type="checkbox"/>	Description of Training Attached See SOP, Tab E See SOP, Tab C		Equivalent Procedures Attached
13. PROCEDURES FOR ORDERING AND RECEIVING RADIOACTIVE MATERIAL		21. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE GASES (e.g., Xenon - 133) N/A	
<input checked="" type="checkbox"/>	Detailed Information Attached See SOP, Tab I		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	
			Detailed Information Attached N/A
<input checked="" type="checkbox"/>	Appendix F Procedures Followed; or	23. PROCEDURES AND PRECAUTIONS FOR USE OF RADIOACTIVE MATERIAL SPECIFIED IN ITEM 6.b	
	Equivalent Procedures Attached		Detailed Information Attached

24. PERSONNEL MONITORING DEVICES

	TYPE <small>(Check appropriate box)</small>	FILM	SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	<input checked="" type="checkbox"/>	FILM	US Army	Monthly
	<input type="checkbox"/>	TLD		
	<input type="checkbox"/>	OTHER (Specify)		
b. FINGER	<input type="checkbox"/>	FILM		
	<input checked="" type="checkbox"/>	TLD	US Army	Monthly
	<input type="checkbox"/>	OTHER (Specify)		
c. WRIST	<input type="checkbox"/>	FILM		
	<input type="checkbox"/>	TLD		
	<input type="checkbox"/>	OTHER (Specify)		

d. OTHER (Specify)

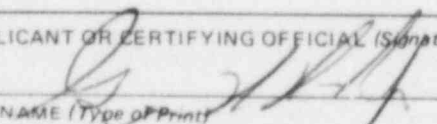
25. FOR PRIVATE PRACTICE APPLICANTS ONLY

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			
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.

a. LICENSE FEE REQUIRED <small>(See Section 170.21, 10 CFR 170)</small>	b. APPLICANT OR CERTIFYING OFFICIAL (Signature) 
	(1) NAME (Type or Print) GEORGE W. WARD, JR., COL, MC
(1) LICENSE FEE CATEGORY: N/A	(2) TITLE Commander, USAMEDDAC, Ft. Knox, KY
(2) LICENSE FEE ENCLOSED: \$	c. DATE 1 March 1985

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 NRC Form 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.

US NRC Application for Materials License-Medical (Continuation Sheet)

6-b. Radioactive Material for Uses Not Listed in Item 6-a:

<u>ELEMENT</u>	<u>CHEM/PHY FORM</u>	<u>MAX NO. OF MILLICURIE</u>	<u>PURPOSE OF USE</u>
Carbon-14	Sealed Source	1.6 mCi (May 66)	Night Vision Testing
Carbon-14	Bactec	9 mCi	Bacterial Growth Detection
Krypton-85	Sealed Source	5.0 mCi (Jun 72)	Calibration
Cobalt-58	Cyanocobalamine	1.0 mCi	Schilling's Tests

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER YEDINAK, Michael A.	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE Pennsylvania
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3. CERTIFICATION		
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Internal Medicine Board		Board Eligible

4. TRAINING RECEIVED IN BASIC RADIOISOTOPE HANDLING TECHNIQUES			
FIELD OF TRAINING A	LOCATION AND DATE (B) OF TRAINING B	TYPE AND LENGTH OF TRAINING	
		LECTURE/ LABORATORY COURSES (Hours) C	SUPERVISED LABORATORY EXPERIENCE (Hours) D
a. RADIATION PHYSICS AND INSTRUMENTATION	Nuc Med Svc, WBAMC, El Paso, TX 1 Jul 82 - Apr 84	50	150
b. RADIATION PROTECTION	same as above	30	30
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	same as above	10	10
d. RADIATION BIOLOGY	same as above	30	10
e. RADIOPHARMACEUTICAL CHEMISTRY	same as above	20	40

5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)				
ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Co57 Intr	Fact 0.8uCi	WBAMC, El Paso, TX	1982-1984	in vivo
Co58	0.8uCi			
Cr51	50-75uCi			
Ga67	4-6mCi			
P32 Sodium	5mCi			
I123	100-150uCi			
I125 RISA	10-15uCi			
I125 Fibr	100uCi			
I131	100uCi-150mCi			

Isotope	Maximum Amount	Where Experience was Obtained	Duration of Experience	Type of Use
In111 DTPA	2mCi	WBAMC, EPT	1982-1983	in vivo
Tl201	2.0mCi	"		in vivo
Xe133	10-20mCi	"		in vivo
Tc99m free & tagged	5-25mCi	"		in vivo

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		KEY TO COLUMN C PERSONAL PARTICIPATION SHOULD CONSIST OF: 1-Supervised examination of patients to determine the suitability for radioactive 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		
YEDINAK, Michael Andrew		
STREET ADDRESS		
Nuclear Medicine Service		
Wm Beaumont Army Medical Center		
CITY	STATE	ZIP CODE
Tl Paso	TX	79920

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 sheet.) D
I-131 or I-125	DIAGNOSIS OF THYROID FUNCTION		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME	30	
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER	Thyroid Ca Met Detection	43	
I-125	DETECTION OF THROMBOSIS	6	
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Sr-90	PANCREAS IMAGING		
Yt-90	CISTERNOGRAPHY	21	
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES	295	
OTHER			
Tc-99m	BRAIN IMAGING	762	
	CARDIAC IMAGING	70	
	THYROID IMAGING	4	
	SALIVARY GLAND IMAGING	12	
	BLOOD POOL IMAGING (MUGA)	906	
	PLACENTA LOCALIZATION	1	
	LIVER AND SPLEEN IMAGING	995	
	SKIN IMAGING	264	
	BONE IMAGING	2601	
OTHER	See attached list		

PRECEPTOR STATEMENT (C) (cont)

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 to be submitted in duplicate on separate sheet.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERITA, LEUKEMIA, AND BONE METASTASES	2	
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA	21	
	TREATMENT OF HYPERTHYROIDISM	50	
Au-198	INTRACAVITARY TREATMENT		
Co-60	INTERSTITIAL TREATMENT		
Co-137	INTRACAVITARY TREATMENT		
I-125	INTERSTITIAL TREATMENT		
Co-60	TELETERAPY TREATMENT		
Co-137	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mn-55/ Tc-99m	GENERATOR	99	
Sr-90/ Y-90	GENERATOR		
Tc-99m	REAGENT KITS		
Others	67Ga Tumor Imaging	547	
	201Tl Myocardial Imaging	292	
	123I Thyroid Function	426	
	51Cr Blood Volume	23	
	57Co Schillings	46	
	58Co Schillings	46	

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

1 Jul - present (Apr 84) 4028

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

a. NAME OF SUPERVISOR

TOMMY J. BROWN, LTC, MC

b. NAME OF INSTITUTION

Wm Beaumont Army Medical Center

c. MAILING ADDRESS

Nuclear Medicine Service

d. CITY

El Paso, TX 79920

5. MATERIALS LICENSE NUMBER(S)

USNRC Broad License 42-05255-07

6. PRECEPTOR'S SIGNATURE

Tommy J. Brown, LTC, MC

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

TOMMY J. BROWN, LTC, MC
Chief, Nuclear Medicine Service

8. DATE

9 Apr. '84

Tc99m

Liver function	345
Renal images	1105
Renal reflux	6
Meckel's divertic	20
Testicular images	41
G.I. bleed	22
Gastric reflux	28
Bone marrow	12
VP shunt	7
Joint scan	6

I131

Adrenal images	2
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I125

Thyroid images	201
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Department of State

State Board of Osteopathic Medical Examiners

To All To Whom These Presents Shall Come Greeting:

Whereas, It appears that

Michael Andrew Uedinak

having given satisfactory evidence of fitness as to age, character, preliminary education, osteopathic instruction and all other matters required by law, and having been found duly qualified for the Practice of Osteopathic Medicine and Surgery is hereby, in accordance with the provisions of the Act of Assembly approved October 5, 1978, and subsequent amendments granted this License to Practice

Osteopathic Medicine and Surgery

In the Commonwealth of Pennsylvania

Paul L. [Signature] D.O.
Richard A. [Signature] D.O.
Earl H. [Signature] D.O.
T. [Signature] D.O.
A. [Signature] D.O.
W. [Signature] D.O.
W. [Signature] D.O.



In Witness Whereof: We have hereunto set our hands and caused the Seal of the Commissioner of Professional and Occupational Affairs to be affixed at Harrisburg the 1st day of July 19 80

Atley A. [Signature] Commissioner

No. OS 4532-L Enrolled in Record Book of The State Board of Osteopathic Medical Examiners

WILLIAM BEAUMONT ARMY MEDICAL CENTER



El Paso, Texas

Know All Men That...

MICHAEL A. YEDINAK, D.O.

Has Submitted Evidence of Successful
Completion of CATEGORICAL INTERNAL MEDICINE INTERNSHIP

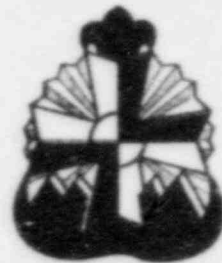
on 30 JUNE 80 for a Period of 12 Months.

I do hereby certify by Authority Vested
in me as Commander, William Beaumont
Army Medical Center, to the Successful
completion of this training.

Dated this 30TH day of JUNE A. D. 1980

Kenneth A. Cass M.D.
KENNETH A. CASS, M.D., Brigadier General

WILLIAM BEAUMONT ARMY MEDICAL CENTER



El Paso, Texas

Know All Persons That...

CPT MICHAEL A. YEDINAK, D.O.

Has Demonstrated Evidence of Marked Ability in
INTERNAL MEDICINE

from 1 JULY 1980 for a Period of TWENTY FOUR Months.
We do hereby certify by Authority Vested in us to the
Successful completion of this training.

Dated this 30TH day of JUNE A. D. 1982

MELVIN J. SASSER, M.D.
Colonel, Medical Corps
Chief, Department of Medicine

WARREN N. OTTERSON, M.D.
Colonel, Medical Corps
Director, Medical Education

CHESTER L. WARD, M.D.
Brigadier General, Medical Corps, USA
Commander

1
DISPLAY THIS CERTIFICATE PROMINENTLY

COMMONWEALTH of PENNSYLVANIA
DEPARTMENT of STATE
BUREAU OF PROFESSIONAL AND OCCUPATIONAL AFFAIRS

CLASSIFICATION

OSTEOPATHIC PHYSICIAN & SURGEON

CERTIFICATE NUMBER

05-004532-L

ISSUED

SEP 27 1982

EXPIRES

OCT 31 1984

ISSUED TO:

MICHAEL A YEDINAK
10708 JACK FLECK DRIVE
EL PASO TX 79935

SIGNATURE

COMMISSIONER

BUREAU OF PROFESSIONAL AND OCCUPATIONAL AFFAIRS

YOU MUST NOTIFY THIS AGENCY OF ANY CHANGES WITHIN 10 DAYS

CURRICULUM VITAE

Name: Michael A. Yedinak, D.O.
Present Address: 10708 Jack Fleck Dr.
El Paso, Texas 79935
Premanent Address: 165 E. Thomas St.
Wilkes-Barre, Pa 18705
Date and Place of Birth: 25 June 1946
Wilkes-Barre, Pa
Citizenship: United States
SSN: 191-36-4909
Service Number: RA 11 98 5512
Marital Status: Married
Wife: Mary Claire
Children: Michael, Heidi Ann, Nicholas
Military History: Entered Active Duty 12 Sept 66
Rank: Current, Cpt

Service Record: 1966-72

Basic Tng., Ft. Gordon, GA

Airborne Infantry, Ft. Ord, CA

Leadership School, Ft. Ord, CA

Airborne School, Ft. Benning, GA

Special Forces Tng., Phase I, Ft. Bragg, NC

Special Forces Medical Tng.

Ft. Bragg, NC

Brook AMC, TX

Walson AH, NJ

Womack AH, NC

Special Forces Tng., Phase II, Ft. Bragg, NC

Special Forces Adv. Med. Lab, Ft. Bragg, NC

Assigned to Co B, 3d SFG(ABN) JFKCENSPWAR, Ft. Bragg, NC

Co B, 3d SFG(ABN) JFKCENSPWAR, Ft. Bragg, nc

A-Team Medic B-5,A-18

Special Forces NCO School

Armed Forces Language Institute (Russian)

Reassigned Delta Co, 3d SFG(ABN) JFKCENSPWAR, Ft. Bragg, NC

1974-79 Co C, 1st Bn, 11th SFG(ABN)USAR

Primary MOS: 11B1P Airborne Infantry
91B4S Special Forces Medic

Secondary: 12B4S Demolitions
05B4S Commo.

Suffix: LRU

Education

High School:	Grand Army of the Republic HS Wilkes-Barre, PA	1960-64
College:	King's College Wilkes-Barre, PA BS Experimental Psych., Chemistry	1964-66 1970-73
Graduate:	University of Scranton Scranton, PA MS BioChem	1974-75
Medical:	Phila. College Osteo. Medicine Philadelphia, PA	1975-79
Internship: (Medicine)	Wm. Beaumont Army Med. Cen. El Paso, TX	1979-80
Residency: (Medicine)	Wm. Beaumont Army Med. Cen. El Paso, TX	1980-82
Fellowship: (Nuc. Med.)	Wm. Beaumont Army Med. Cen. El Paso, Tx	1982-84

Membership in Professional Organizations:

American College of Physicians
American Osteopathic Association
Pennsylvania Osteopathic Association
American College of General Practice

Professional Organizations:

Association of Military Osteopathic Physicians & Surg.
American Society of Clinical Hypnosis
Society of Nuclear Medicine

License: Pennsylvania 1979

Projects in Progress:

Evaluation of Radiotracers in Pregnant, lactating Sheep

Effects of Delta-9-tetrahydrocannabinol on Placental
Blood Flow

Nebulised Aerosol Therapy: An Evaluation of Two Delivery
Systems

Case Report: Gallium Citrate, Cold to Hot in Anaerobic
Liver Abcess

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER MANFRE, JOHN G. JR. LT, MSC, US Army	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE N/A
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3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
Nuclear Medicine Technology (ARRT)	Registered Technologist (NMT)	June 1979

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	May 1978-May 1979 1 National Naval Medical Ctr Bethesda, MD and Walter Reed Army Medical Ctr	230	1440
b. RADIATION PROTECTION	Washington, DC 2 US Army Environmental Hy- giene Agency, APG, MD June 1982-Feb 1983	70	(Training Program in Clinical Nuclear Medicine Aug 78- May 79)
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Same as 1.	75	
d. RADIATION BIOLOGY	NNMC, May-Sep 1978	38	
e. RADIOPHARMACEUTICAL CHEMISTRY	Same as 1.	74	

5. EXPERIENCE WITH RADIATION. (Actual use of Radioisotopes or Equivalent Experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
¹³⁷ Cs	¹³⁰ Cl	USAEHA	Jan-Feb 1983	Calibration
PuBe	³ Cl	"	" " "	"
³ H	³ Cl	"	" " "	"
¹³¹ I	¹⁵⁰ mCi	WRAMC, WASH, DC	Aug 78-Mar 82	Therapeutic
¹³³ Xe	¹⁶⁰ mCi	WRAMC, WASH DC	" " "	Diagnostic

(Continued on page following)

ISOTOPE	MAX AMOUNT	WHERE EXPERIENCE GAINED	TYPE OF USE
99mTc	1,800mCi	WRAMC, WASH DC	Diagnostic
67Ga	20mCi	AUG 1978-Mar 1982	"
32P	15mCi	" "	Assisted Physicians
201Tl	5mCi	" "	in Procedures
57Co	5mCi	" "	Diagnostic
51Cr	35uCi	" "	Calibration/GI
125I	50uCi	" "	Absorption Mess.
133 Ba	50uCi	USAEHA	GI Measurements
		JAN 1983-FEB 1983	In-vitro Diagnostic
111In	500uCi	WRAMC	Calibration
123I	300uCi	"	Diagnostic
UPDATED FEBRUARY 1985 for License Renewal			
99m Tc	2,000 mCi	Ireland Army Community	Assisted Physicians
		Hospital, Ft. Knox,	Diagnostic Procedures.
		Kentucky 40121-5520	Radiation Survey
		April 1983-present(Feb 1985)	
67Ga	50 mCi	" " " " "	Diag/Rad Survey
201 Tl	20 mCi	" " " " "	Diag/ Rad Survey
57 Co	20 mCi	" " " " "	Diag/ Rad Survey
125I	50 uCi	" " " " "	In-Vitro Diag Use/Survey
133 Ba	300 uCi	" " " " "	Calibration/ Survey
111In	500 uCi	" " " " "	Diag/ Rad Survey
123 I	300 uCi	" " " " "	Diag/ Rad Survey
C-14	1.6mCi	" " " " "	Rad Survey
85 Kr	5.0mCi	" " " " "	Calib/ Rad Survey
99m TcDTPA	100mCi	" " " " "	Diag/ Rad Survey
Aerosol for Ventilation Imaging			

ATTACHMENT TO NRC LICENSE AMENDMENT
NO . 27, IRELAND ARMY COMMUNITY HOSPITAL
INSTRUMENTATION

1. Nuclear Medicine Service

- a. Technicare Gamma Camera , Model Sigma 420
- b. Technicare Gamma Camera, Model Sigma 438
- c. Technicare Gamma Camera, Model Omega 500
- d. Gamma Trac RIA Counting System, Model 1290
- e. Searle Analytic RIA Counting System, Model, 1185
- f. Picker Spectroscafer Well Counter, Model 4R

2. *g. Canberra Series 35 Plus Multi Channel Analyzer*
Radiation Protection Office

- a. MDH Model 1015C X-ray Monitor (X-ray survey)
- b. Keithley Model 35055 Dosimeter (X-ray survey)
- c. Victoreen Model 570 R Chamber System 0-5R
- d. Victoreen Model 440 Survey meter 0-300 MR/HR
- e. Ludlum Model 2200 Counter (3) 0-500,000 CPM
- f. Ludlum Model 14C (2) 0-2R/HR
- g. Eberline Model PRM-6 (2) 0-500,000 CPM
- h. Ludlum Model 177 Counter (2) 0-500,000 CPM
- i. Victoreen Model 425 Room Monitor 0-500,000 CPM
- j. Eberline Model E-120 0-2R/HR
- k. Eberline Model E-120 0-2R/HR
- l. Monitor Prima II b (RMI)
- m. Keithley Dosimeter 35055 (X-ray Survey)
- n. Johnson Pocket Dosimeter 0-1000 MR
- o. Victoreen Pocket Dosimeter 0-200 MR

ATTACHMENT TO NRC LICENSE RENEWAL
NO. 27, IRELAND ARMY COMMUNITY HOSPITAL
FACILITY DIAGRAMS

Enclosed are the current diagrams of all buildings or rooms in which radioisotopes on BML 16-03657-01 are used or stored.

- a. Nuclear Medicine Service, Ireland Army Community Hospital
- b. Microbiology, Department of Pathology, Ireland Army Community Hospital
- c. Storage Bunker, waste
- d. Nuclear Medicine Service, IACH, Decay/Generator Storage Room
- e. Cardiology Clinic, IACH, where stress Thallium Tests are performed
- f. RIA Lab, Rooms NIH-15, NIH 17 and NIH 19, IACH

Bldg 1024

ACCESS ROAD
(NOT ROUTINE USED)

40'

10'

RAISED
CONCRETE
FLOOR
12" DEPTH
18" DIAMETER

RADIOISOTOPE
STORAGE
SHELVING - 1/8" Lead
shielding for unshielded
isotopes

BUNKER WALL
1' OF CONCRETE
WITH 6' OF EARTH
SURROUNDING THE
ENTIRE Bldg.
EXCEPT THE ENTRANCE

DOORS (LOCKED)

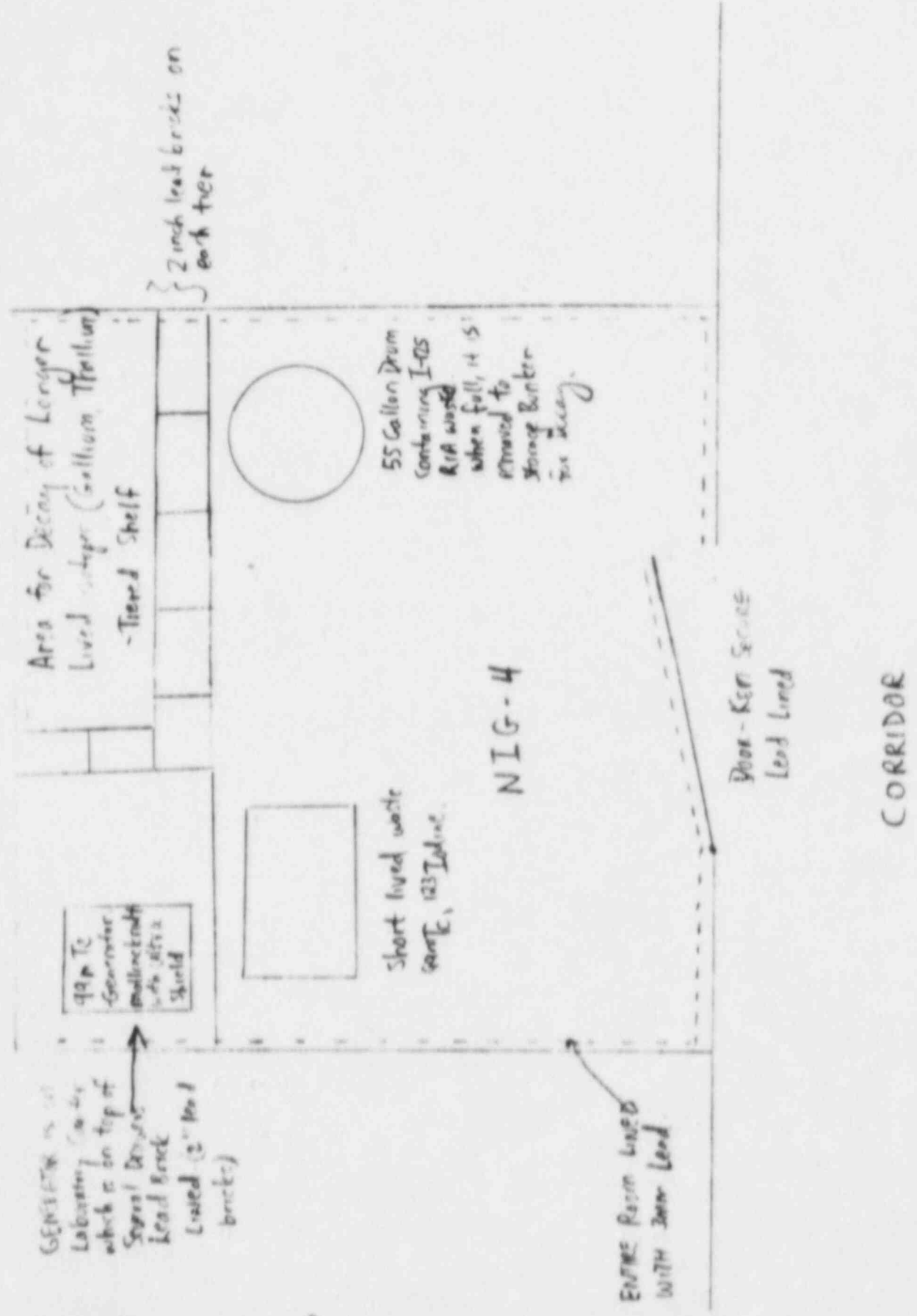
OPEN
FIELD

40'

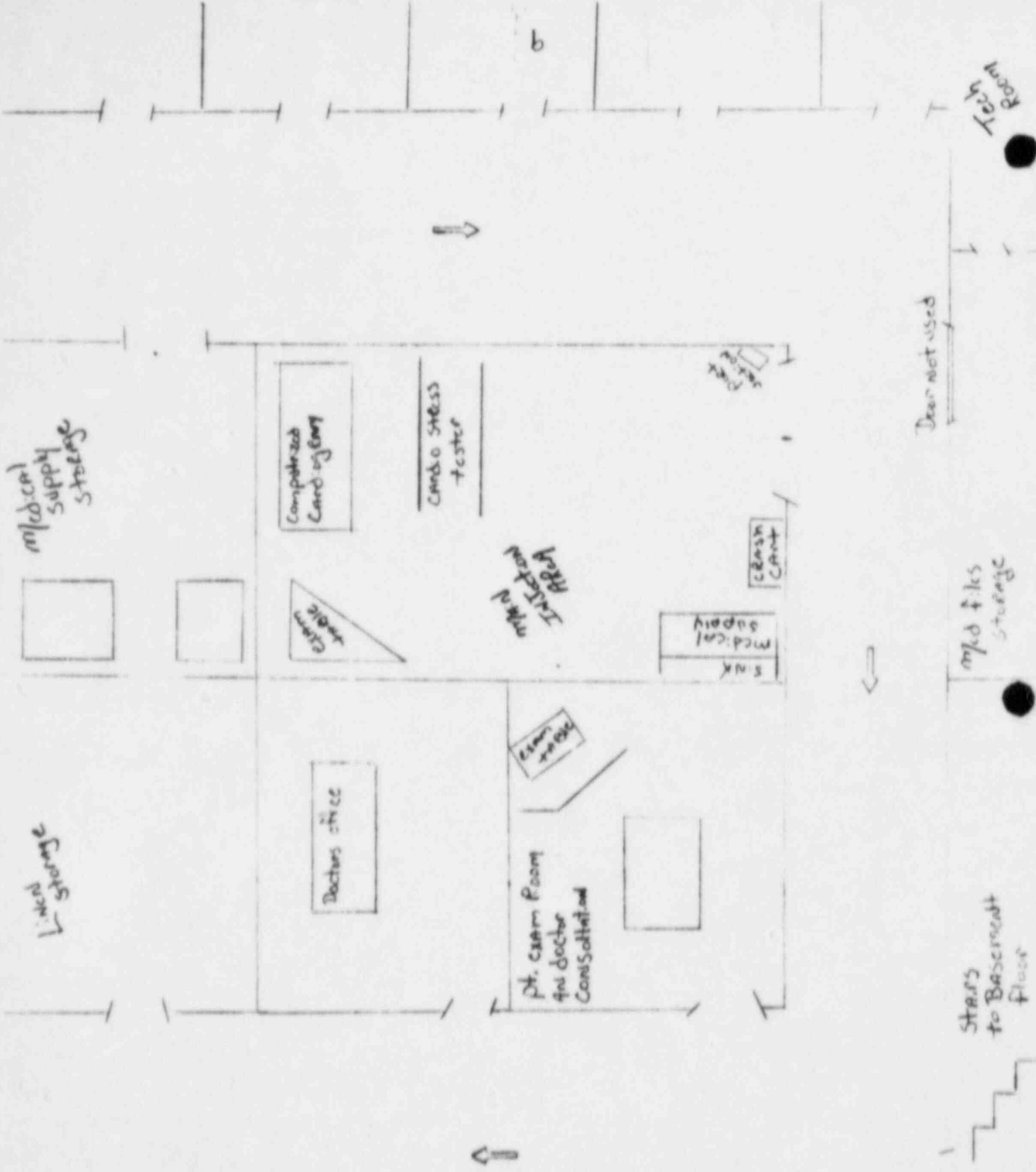
ENTRANCE
WALKWAY

PARKING LOT

INCLINED PUMP HOUSE - 4011
 REGIONAL NUCLEAR REFUELING SERVICE
 10000 ROAD 10000



Primary Care (Internal Meds)
14 Nov 89
(Room # N10-2B)

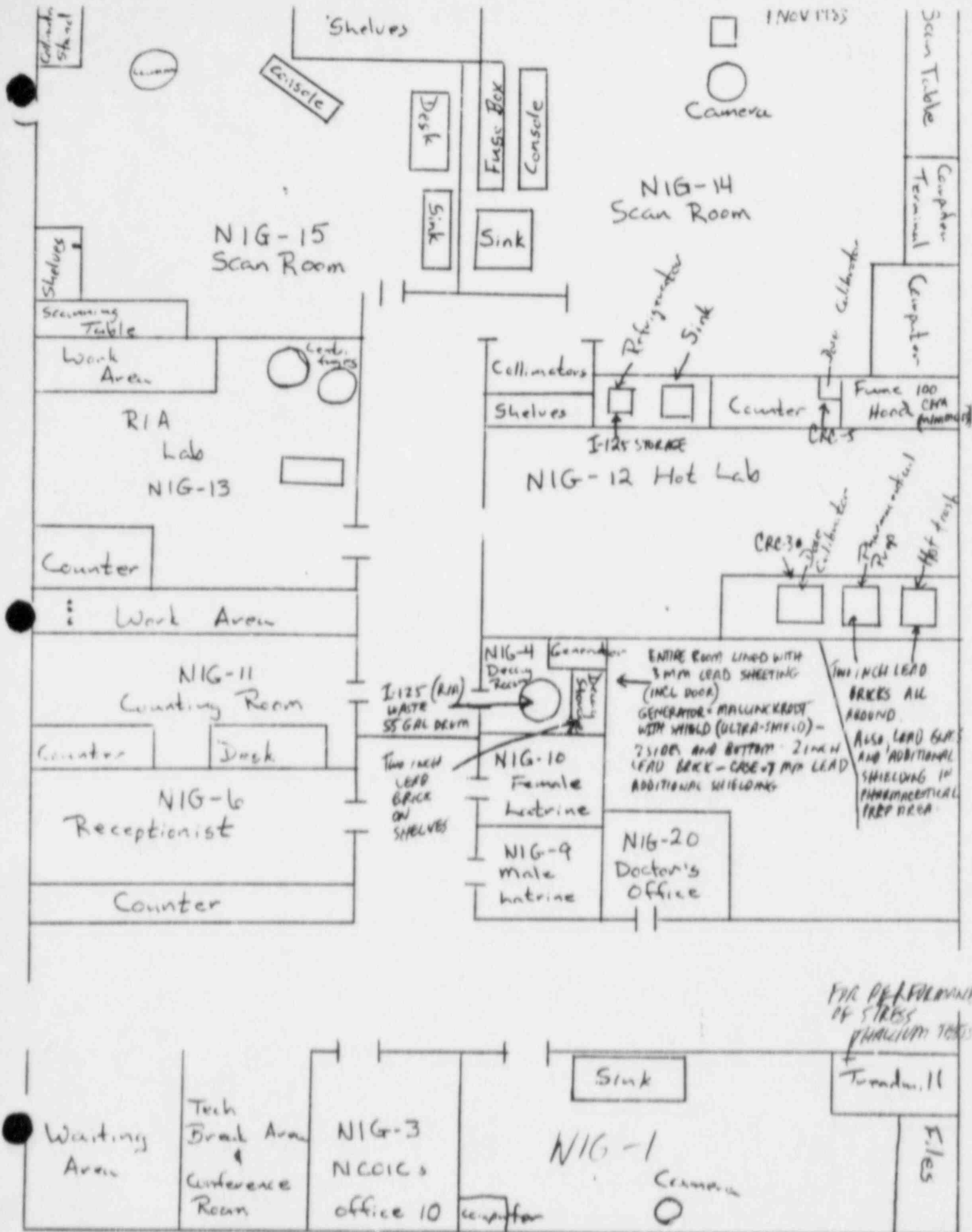


Stairs to Basement floor

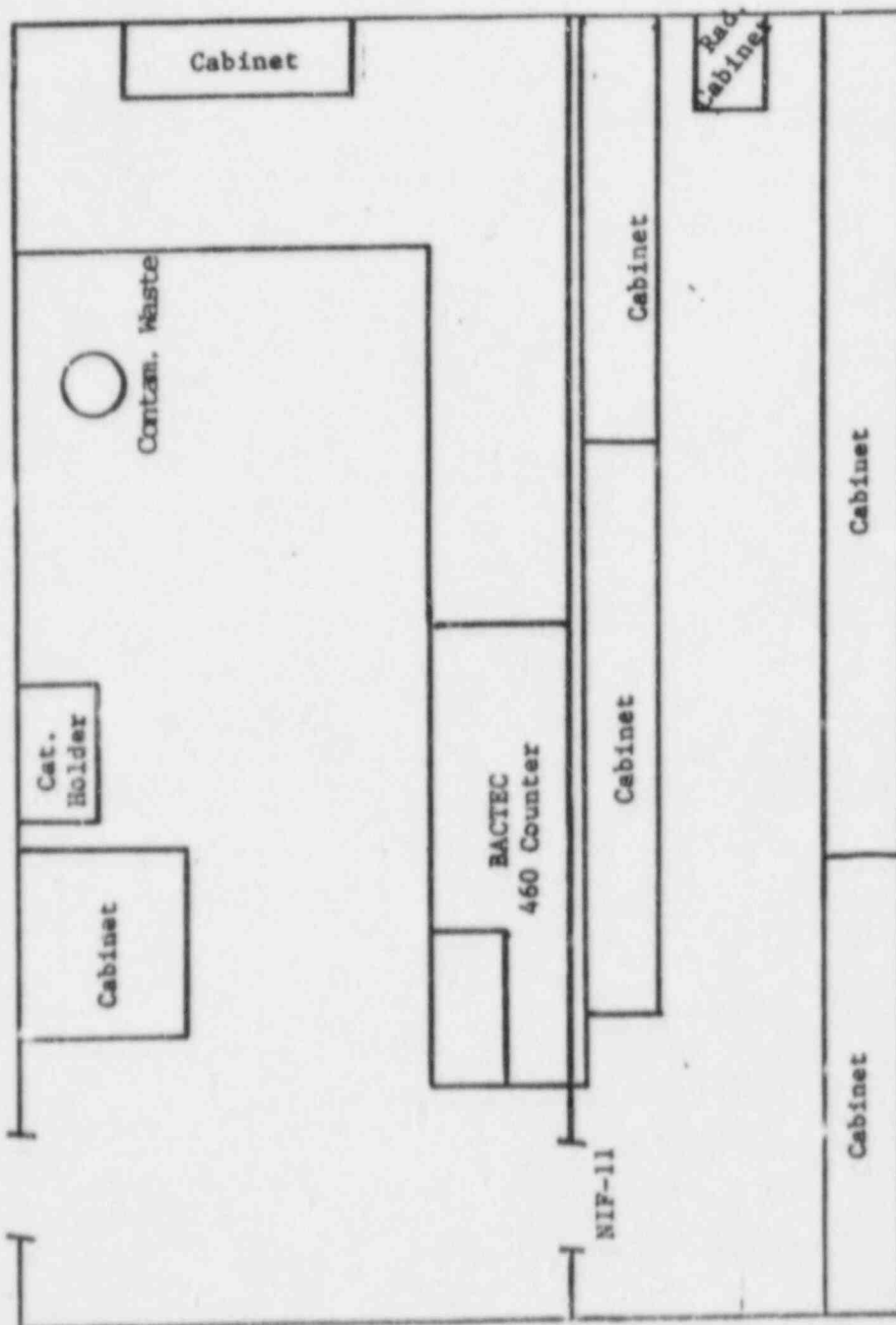
Medical supply storage

Door not used

Tech Room



MICROBIOLOGY SECTION
 Department of Pathology
 Bldg 851, Rm NIP-14



PATHOLOGY LABORATORY

CORRIDOR

DESK WITH
COUNTER

DESK WITH
REFRIGERATOR

WATER
BATH

WORK BENCH

WATER

TRASH

HOT
SINK

CENTRIFUGE

REFRIG

2nd CENTRIFUGE
AND/OR
2nd REFRIGERATOR

DOORWAY

Note: RIA also performed
in Rooms NIG-11, 12, and 13,
Main Nuc Med Clinic.

NIG-17
PRESENT
RECEPTION AREA
(ADMIN USE)

PROPOSED RIA LAB/RAD PROT. OFFICE
ANNEX

FEBRUARY 1985

CORRIDOR

IRLAND ARMY
COMMUNITY HOSPITAL, FT KNOX, KY

MAIN
DOOR
(SECURED)

DRAWING
NOT TO SCALE

PROPOSED RIA LAB/RAD PROT. OFFICE ANNEX

CORRIDOR

IACH, FT KNOX KY
FEBRUARY 1985

ATTACHMENT TO NRC LICENCE RENEWAL
NO. 27, IRELAND ARMY COMMUNITY HOSPITAL
NUCLEAR MEDICINE STANDING OPERATING PROCEDURES

Enclosed are Standing Operating Procedures (SOPs) generated within Nuclear Medicine Service, Ireland Army Community Hospital. These are in addition to the SOPs which are generated by the Radiation Protection Office, Ireland Army Community Hospital.

RADIATION PROTECTION PROCEDURES

1. Receipt and Monitoring of Radioactive Materials

All radioactive by-products for use in the Nuclear Medicine Clinic at the Ireland Army Community Hospital, Fort Knox, KY, are delivered directly to the above mentioned clinic by commercial carrier. Upon receipt all containers are monitored, in accordance with 10 CFR, part 20.205 and 10 CFR part 71. Results are recorded.

2. Shielded Storage Areas

Two isotope storage areas are employed. Both are away from the main work area of the laboratory. In one area the Tc99 generator is stored behind lead bricks. The other area is used primarily for isotopes until they are sufficiently decayed for disposal. Again, lead bricks are employed.

3. Storage and Disposal of Waste By-Product Materials

Containers, instruments, absorbent mats, or any other material employed during the use of by-products materials, is to be placed in marked storage containers which are shielded and kept in designated locations. This area is clearly marked with "Radiation Hazard" warnings. Materials placed in this container will be allowed to remain until they have decayed to background levels. At this time, they are to be disposed of by routine measures.

4. Radiation Surveys

Routine radiation surveys which are to be recorded will be of two categories. Daily surveys are to include thorough survey of the work area within the isotopes laboratory. A general survey including all areas of the isotopes laboratory will be conducted on a weekly basis

and will be recorded as indicated in survey notebook.

5. Personnel Monitoring

Only authorized personnel are permitted within the isotope laboratory. All such personnel will be supplied with film badges to be worn while in the isotope laboratory at all times. Such badges will be returned to the supplier for processing on a monthly basis. Additional monitoring will be a bio-assay once a month or oftener. This method will be an I-131 uptake to detect I-131 and be referred to the Radiation Protection Officer.

6. Records

Two sets of records are to be maintained at all times. These include reports of receipt, transfer and disposal of by-product materials which will be recorded in a notebook and will include all by-product received recording the data received and activity of the received products. Each recorded sample will be fully accounted for either by administration to individual patients, radioactive decay, or disposal by methods previously mentioned. The second set of records are to include the survey reports and similarly will be placed in the notebook.

NOTE: All personnel authorized access to the isotopes laboratory will be expected to familiarize themselves with Title 10 CFR-parts 19-20-21-29-30 of NRC: Standards for protection against radiation and AR 40-37, MEDDAC Reg 40-5.

The rules and regulations set forth in this document are to adhered to at all times.

NUCLEAR MEDICINE CLINIC
IRELAND ARMY HOSPITAL
FORT KNOX, KY. 40121
STORAGE OF RADIOISOTOPES

After the radioisotopes have been received and monitored and recorded, they are kept stored in the lead bricks in the fume hood for immediate use. The fume hood is in room NIG-12.

The Tc99 generator is kept in its lead protective shield during the week it is being milked.

I-131 in liquid form is kept stored in fume hood until it decays to a disposable level.

Radioisotopes that have expired but not decayed to a disposable level are kept stored in decay room # NIG-12.

Radioisotopes are kept stored for decay at least through 10 $T_{1/2}$ half lifes or longer until they reach a disposable level.

Radioisotopes that require refrigeration will be shielded to prevent an exposure rate of more than 2mr/hr at a distance of one foot away from surface of refrigerator.

NUCLEAR MEDICINE SERVICE
IRELAND ARMY COMMUNITY HOSPITAL
FORT KNOX, KENTUCKY 40121

RADIOACTIVE WASTE DISPOSAL

Radioactive waste will be disposed of in accordance with MEDDAC Regulations, 40-5 and the following specific procedures.

- A. All radioactive isotopes will be held through 10 T- $\frac{1}{2}$ or until they read background level.
- B. Short-lived nuclide waste, nuclides with less than six hours T- $\frac{1}{2}$, will be placed in "hot trash" storage in room NIG-12. When the container becomes filled, it is placed in the decay room, NIG-4, behind the lead shielding and held for decay. When this container has decayed to box ground or less at surface reading, it is then marked as contaminated waste.
- C. Long-lived nuclide waste, nuclides with over six hours T- $\frac{1}{2}$, will be stored in their lead enclosed shipping container and stored behind the lead barriers in NIG-4. When the nuclide has decayed through 10 T- $\frac{1}{2}$, it is removed from the lead container and disposed of in contaminated waste, if the reading of below background on the survey meter.
- D. No radioactive waste may be disposed of from the decay room until:
 - 1. The container does not read above background with a survey meter.
 - 2. The calculated activity is less than 01002 uCi per gram.
- E. Very long-lived nuclide waste, T- $\frac{1}{2}$ greater than 30 days, may be disposed of by contacting the Radiation Protection Officer for special storage.
- F. Small quantities of liquid radioactive waste may be disposed of by putting it in the barrel in the decay room NIG-4.
- H. Both the liquid and solid waste disposed of will be recorded in the log book, or in some other retrievable data system, giving the following:
 - 1. Date
 - 2. Isotope and/or chemical form
 - 3. Activity (mCi and uCi) and number of tubes.

RADIOACTIVE WASTE DISPOSAL (Continued)

I. When radioactive isotopes are no longer usable, they are stored in the decay room NIG-4, until they are at a level of that they can be safely disposed of as described above.

When an isotope is moved the Radiopharmaceutical Record, DA Form 4574-R, or *other* applicable form, is also removed from the Active Book to the holding for decay or Disposal Notebook.

When the isotope reaches the safe level for disposition, 10 T-4 or below background, the date of disposition and person disposing the material will record it on the log sheet DA Form 4575-R, or *other* applicable form.

J. When the disposition trash barrel is full, the Radiation Protection Officer is notified to remove and replace it.

RADIATION SAFETY and EMERGENCY PROCEDURES

GENERAL RULES FOR THE SAFE USE OF RADIOACTIVE MATERIAL¹

1. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.
2. Wear disposable gloves at all times while handling radioactive materials.
3. Monitor hands and clothing for contamination after each procedure or before leaving the area.
4. Use syringe shields for preparation of patient doses and administration to patients.
5. Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material is stored or used.
6. Assay each patient dose in the dose calibrator prior to administration. Do not use any doses that differ from the prescribed dose by more than 10%.
7. Wear personnel monitoring devices (film badge or TLD) at all times while in areas where radioactive materials are used or stored. These devices should be worn at chest or waist level.
8. Wear TLD finger badges during elution of generator and preparation, assay, and injection of radiopharmaceuticals.
9. Dispose of radioactive waste only in specially designated receptacles.
10. Never pipette by mouth.
11. Survey generator, kit preparation, and injection areas for contamination after each procedure or at the end of the day. Decontaminate if necessary.
12. Confine radioactive solutions in covered containers plainly identified and labeled with name of compound, radionuclide, date, activity, and radiation level, if applicable.
13. Always transport radioactive material in shielded containers.

EMERGENCY PROCEDURES²

MINOR SPILLS

1. **NOTIFY:** Notify persons in the area that a spill has occurred.
2. **PREVENT THE SPREAD:** Cover the spill with absorbent paper.
3. **CLEAN UP:** Use disposable gloves and remote handling tongs. Carefully fold the absorbent paper and pad. Insert into a plastic bag and dispose of in the radioactive waste container. Also insert into the plastic bag all other contaminated materials such as disposable gloves.
4. **SURVEY:** With a low-range, thin-window G-M survey meter, check the area around the spill, hands, and clothing for contamination.
5. **REPORT:** Report incident to the Radiation Safety Officer.

MAJOR SPILLS

1. **CLEAR THE AREA:** Notify all persons not involved in the spill to vacate the room.
2. **PREVENT THE SPREAD:** Cover the spill with absorbent pads, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.
3. **SHIELD THE SOURCE:** If possible, the spill should be shielded, but only if it can be done without further contamination or without significantly increasing your radiation exposure.
4. **CLOSE THE ROOM:** Leave the room and lock the door(s) to prevent entry.
5. **CALL FOR HELP:** Notify the Radiation Safety Officer immediately.
6. **PERSONNEL DECONTAMINATION:** Contaminated clothing should be removed and stored for further evaluation by the Radiation Safety Officer. If the spill is on the skin, flush thoroughly and then wash with mild soap and lukewarm water.

RADIATION SAFETY OFFICER: _____

OFFICE PHONE: _____

HOME PHONE: _____

ALTERNATE NAMES AND TELEPHONE NUMBERS DESIGNATED BY RSO:

NAME _____ NAME _____

OFFICE PHONE _____ HOME PHONE _____ OFFICE PHONE _____ HOME PHONE _____

¹Appendix G, ²Appendix H—U.S.N.R.C., Regulatory Guide 10.8 Guide for the Preparation of Applications for Medical Programs

NUCLEAR MEDICINE SERVICE
IRELAND ARMY HOSPITAL
FOR KNOX, KENTUCKY 40121

RADIOPHARMACY SAFETY RULES

1. Use syringe shield whenever reconstituting kits, drawing doses and all other manipulations of radioactive material in syringes.
2. Store all vials containing radioactive material in appropriate lead shields.
3. Use forceps when handling or transferring vials or ampules of radioactive materials.
4. Always handle large quantities of radioactive material behind the "Leaded Glass L Shield" in the dose drawing area.
5. Wear protective gloves, aprons, laboratory coats, etc., whenever handling radioactive material.
6. Always wear all dosimetry badges supplied, film badges, and/or TLD badges when available.
7. Eating, drinking, smoking, or applying cosmetics are not permitted in any area where radioisotopes are stored or used.
8. Do not store food (Lunch bags, soft drinks, etc.) in cabinets or refrigerators which are used for radioactive material storage or use.
9. Wash hands thoroughly after handling any radioisotope and monitor hands with a suitable detector before going about other work and whenever leaving the laboratory for meals or coffee breaks.
10. Radioactive materials will not be pipetted by mouth.
11. Containers of radioactive material will be clearly marked with the identity of the isotope, activity of the isotope, and the date of assay of the isotope.
12. Non-radioactive waste will not be discarded into radioactive waste containers.
13. Absorbent paper will be used to the maximum extent practicable to minimize the spread of contamination. Due regard will be given to other hazards in the work area, such as accidental ignition of the paper by open flames.
14. Material containing radioactive material and potentially infectious bio-hazards will be disinfected by autoclave or other suitable method prior to being released as radioactive waste.

DAILY RADIOPHARMACY PROCEDURES

1. Milk the ^{99}Mo - ^{99}Tc Generator.
 - A. Place 10 ml elution vial in lead pig with top generator.
 - B. Place lead pig under needle area on generator.
 - C. Depress plunger and turn counter-clockwise $\frac{1}{2}$ turn.
 - D. Wait 5 minutes for elution to be completed.
 - E. Remove elution vial with NaTcO_4 and calibrate the total activity of NaTcO_4 in eluent with dose calibrator.
 - F. Using extender tongs visually inspect the vial to determine clarity and to check the volume.
 - G. Initiate Radiopharmaceutical Stock Record, include Radiopharmaceutical, Manufacturer, Lot number, Date and Expiration Date of Product.
 - H. Initiate quality control procedures for the NaTcO_4 .
 - I. Run quality control checks on the NaTcO_4 before kit preparation.
 - (1) pH (5.5 - 6.5)
 - (2) Al^{+++} check using Aluminum Ion Indicator strips.
 - (3) ^{99}Mo check, less than 0.3 μCi $^{99}\text{Mo}/1 \text{ mCi}$ $^{99\text{m}}\text{Tc}$.
 - J. Enter all Q.C. results on the Radiopharmaceutical Stock Record.
2. Prepare all necessary kits as recommended by the manufacturer.
 - A. Run quality control procedures on all prepared kits.
 - (1) Ph.
 - (2) Chromatograms.
 - B. Initiate Radiopharmaceutical Stock Record on all prepared kits. Include Radiopharmaceutical Manufacturer, Lot number, Date, Expiration Date, Lot number of $\text{Tc}^{99\text{m}}$ Generator, and Generator Manufacturer.

4. Draw doses as required.

- A. Fill in Radiopharmaceutical Stock Record with patient name, date, time of dispensing, procedure, mCi dispensed, volume dispensed, remaining volume and tech initials.
- B. Multiple syringes will not be prepared in advance in order to minimize the possibility of error.
- C. File all Radiopharmaceutical Stock Records weekly.

OPERATING PROCEDURE SUMMARY FOR CRC-30

For detailed description of the operating procedures, please refer to the CRC-30 owner's manual.

I. DAILY CHECKS

1. Push ACT button
2. Push ZERO button
3. Adjust 'ZERO' knob to read approximately 0.0 μCi on the display
4. Push BKG button
5. Adjust 'BACKGROUND' knob to read approximately 000.0 μCi on the display
6. Push OTHER button
7. Set calibration control at 2 2 0 setting
8. Place Cs-137 check source in the detector well
9. Record the reading. The reading should be within $\pm 5\%$ of the calculated (predicted) activity of the source.
10. Repeat the above procedure with the Cs-137 source at all commonly used radionuclide settings and/or push button settings. Compare these values with the readings taken at previous days to check the consistency of the instrument at all radionuclide settings. The readings will decrease by .2% per month for Cs-137 source on account of decay.

II. MEASUREMENT OF TC99M (GENERATOR ELUTION)

1. Push ACT button
2. Push MO
ASSAY button
3. Set 'SAMPLE VOLUME' thumb-wheel to actual volume of the elution
4. Select sample no. (between 1-19) at which the measurement information needs to be stored on the SAMPLE NUMBER thumb-wheel.

Mo99 ASSAY PROCEDURE (Continued)

8. In the event of a Molybdenum 99 breakthrough greater than the acceptable limits set in item 7, the technician will immediately recheck his assay procedure for a technical error.

If the assay procedure steps were correct, then he will contact his supervisor, who will then contact the RPO.

Patients will be rescheduled. No further steps will be taken by the technician until the RPO has reviewed the situation and made a decision.

9. The amount of Molybdenum 99 breakthrough will be recorded daily or with each elution of Technetium 99m from the Molybdenum 99/Technetium 99 generator.

The recording will be recorded at the bottom of DA Form 4574 (Radiopharmaceutical Stock Record) or other applicable form, which is now being used to record the daily elutions of Tc99m from the Mo99 generator.

The recording will include the date, amount of Mo99 breakthrough in total volume of liquid and initials of technician assaying the elution.

DOSE CALIBRATOR PROCEDURE AND TESTS (CRC-5)
(CRC-30)

Daily Procedure and Test

Pre-Measurement Procedure

1. After warm-up is accomplished, i.e. if the meter reading is stabilized push ZERO and select 2000 mCi range. If the meter display is not within 0002.mCi, adjust the locked potentiometer for the meter display of zero (+0000).

The display goes in the positive direction when the knob of the potentiometer is turned clockwise.

Be sure to lock the potentiometer after adjustment has been made since this adjustment will not be required.

2. Confirm the background level. Be sure there are no radioisotopes (especially the sample to be measured), nor patients who have been injected with radiopharmaceuticals near the calibrator. Select the push button assigned to the radioisotope to be measured.

3. If the background level is too high and has an effect on the accuracy of the intended measurement, push BKG button. Turn the Activity Range Selector to 200 uCi and then turn the Background Adjust Control until the meter displays near zero (within ± 00.5 uCi). A fluctuation of a few tenths of uCi is normal.

4. After the meter displays zero or near zero, push the button assigned to the radioisotope to be measured.

Activity Measurement Procedure

1. Select push button assigned to the radioisotope to be measured. If the radioisotope to be measured is not one of the eight frequently used isotopes, push OTHER radioisotope button, then set the dial of the potentiometer (panel mounted below the OTHER radioisotopes push button) to the calibration number corresponding to the radioisotope to be measured. The calibration numbers for commonly used radioisotopes are shown on the chart attached to the unit.

2. Select the appropriate Activity Range.

3. Insert the radioisotope into the well of the calibrator by using a sample holder. Change the Activity Range when over-ranging occurs or when an insufficient number of digits is displayed.

NUCLEAR MEDICINE SERVICE
IRELAND ARMY COMMUNITY HOSPITAL
FT KNOX, KENTUCKY 40121

Mo99/Tc99m ASSAY PROCEDURE FOR CRC-5 AND CRC-30 DOSE RATE CALIBRATORS

1. Push button Mo99 assay in on CRC-30.
 2. Push button other in and dial 80 on CRC-5.
 3. Place the "Mo Assay Canister" gently into the well chamber, without the sample in it and record the forkground readings from the calibrator. Note, the "Mo Assay Canister" is a lead canister of the proper dimensions to accept a 30 milliliter vial and an insecton holder. The Characteristics of the canister are such that the Tc 99m reading is reduced to less than 10-6 of the unshielded reading while the Mo99 reading is reduced by approximately 65%.
 4. Insert the elution vial of Tc 99m into the Mo99 assay canister and place it into the dose calibrator and take reading of the Mo99 contamination or break-through.
 5. Subtract the borkground from the reading with the sample in the canister, then multiply the number by 5 to obtain contamination of Mo99 in the Tc 99 vial.
 6. Push Tc 99m push button or push (OTHER) and set the calibration knob dial to 80. Take out the sample vial from the Mo Assay Canister. Select appropriate Activity Range for Tc 99 sample. Insert the vial into the ionization chamber well by using the plastic dipper (without any shield around the vial). Record the activity of Tc 99m.
- The contamination of Mo99 in Tc99 must be less than 0.1%. It is considered to be a good practice to work with solutions having less than one part of M099 contamination in 10,000 parts of Tc99.
7. Technetium 99m containing more than one (1) microcurie to molybdenum 99 per millicurie of technetium 99m or more than five (5) microcuries of molybdenum 99 per dose of technetium 99m shall not be administered to patients. The limits of molybdenum 99 contamination represent maximum values and molybdenum 99 contamination should be kept as low as reasonably achievable below these limits.

DISPOSITION FORM

For use of this form see AP 340-15; the proponent agency is TAGO

REFERENCE OR OFFICE SYMBOL

SUBJECT

USXM-PM

Radiation Protection Program

TO All Radiation Workers
USAMEDDAC and USADENTAC
Fort Knox, Kentucky

FROM RPO

DATE 20 October 1983
jgn/4-1143

CMT 1

1. Enclosed is the revised Radiation Protection Program for the USAMEDDAC and USADENTAC, Fort Knox, Kentucky. The program is in two parts:

a. USAMEDDAC Regulation 40-5, Radiation Protection Program, 21 September 1983.

b. Volume of Standing Operating Procedures in Radiation Protection, 1 November 1983, prepared by the Radiation Protection Office for reference by all radiation workers and other interested personnel.

2. It is incumbent upon each radiation worker to be thoroughly familiar with the contents of the binder with which he/she is concerned. After each worker has read and thoroughly understood the contents of the Radiation Protection Program, he/she will sign a statement indicating that understanding.

Encl

JOHN G. MANFRE, Jr.
1LT, MSC
Radiation Protection Officer

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