

FORM NRC-313M (8-78) 10 CFR 35	U.S. NUCLEAR REGULATORY COMMISSION APPLICATION FOR MATERIALS LICENSE - MEDICAL		Approved GAO R0557																																													
<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 Licensee is subject to Title 10, Code of Federal Regulations, Parts 19, 20 and 35 and the license fee provision of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 26 and the appropriate fee enclosed.																																																
<b>1.a. NAME AND MAILING ADDRESS OF APPLICANT</b> (institution, firm, clinic, physician, etc.) INCLUDE ZIP CODE  John E. Rogan M.D. 90 South Main Street Middletown, CT 06457  TELEPHONE NO.: AREA CODE (203) 347-4258		<b>1.b. STREET ADDRESS(ES) AT WHICH RADIOACTIVE MATERIAL WILL BE USED</b> (If different from 1.a.) INCLUDE ZIP CODE  as per 1.a. 30-28939																																														
<b>2. PERSON TO CONTACT REGARDING THIS APPLICATION</b>  John E. Rogan M.D.  TELEPHONE NO.: AREA CODE (203) 347-4258		<b>3. THIS IS AN APPLICATION FOR:</b> (Check appropriate item) a. <input checked="" type="checkbox"/> NEW LICENSE b. <input 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.)  John E. Rogan 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.)  John E. Rogan M.D.																																														
<b>6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE</b>																																																
<table border="1"> <thead> <tr> <th>RADIOACTIVE MATERIAL LISTED IN:</th> <th>ITEMS DESIRED "X"</th> <th>MAXIMUM POSSESSION LIMITS (In millicuries)</th> </tr> </thead> <tbody> <tr> <td>10 CFR 31.11 FOR IN VITRO STUDIES</td> <td></td> <td></td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP I</td> <td>X</td> <td>AS NEEDED</td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP II</td> <td>X</td> <td>AS NEEDED</td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP III</td> <td></td> <td></td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP IV</td> <td></td> <td>AS NEEDED</td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP V</td> <td></td> <td>AS NEEDED</td> </tr> <tr> <td>10 CFR 35.100, SCHEDULE A, GROUP VI</td> <td></td> <td></td> </tr> </tbody> </table>		RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	10 CFR 31.11 FOR IN VITRO STUDIES			10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED	10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED	10 CFR 35.100, SCHEDULE A, GROUP III			10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED	10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED	10 CFR 35.100, SCHEDULE A, GROUP VI			<table border="1"> <thead> <tr> <th>ADDITIONAL ITEMS:</th> <th>MARK ITEMS DESIRED "X"</th> <th>MAXIMUM POSSESSION LIMITS (In millicuries)</th> </tr> </thead> <tbody> <tr> <td>IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM</td> <td></td> <td></td> </tr> <tr> <td>PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA, LEUKEMIA AND BONE METASTASES</td> <td></td> <td></td> </tr> <tr> <td>PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.</td> <td></td> <td></td> </tr> <tr> <td>GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.</td> <td></td> <td></td> </tr> <tr> <td>IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA</td> <td></td> <td></td> </tr> <tr> <td>ION-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.</td> <td></td> <td></td> </tr> </tbody> </table>		ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM			PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA, LEUKEMIA AND BONE METASTASES			PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.			GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.			IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA			ION-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		
RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)																																														
10 CFR 31.11 FOR IN VITRO STUDIES																																																
10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED																																														
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED																																														
10 CFR 35.100, SCHEDULE A, GROUP III																																																
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED																																														
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED																																														
10 CFR 35.100, SCHEDULE A, GROUP VI																																																
ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)																																														
IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM																																																
PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA, LEUKEMIA AND BONE METASTASES																																																
PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.																																																
GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.																																																
IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA																																																
ION-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.																																																
<b>6.b. RADIOACTIVE MATERIAL FOR USES NOT LISTED IN ITEM 6.a.</b> (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.)																																																
<table border="1"> <thead> <tr> <th>ELEMENT AND MASS NUMBER</th> <th>CHEMICAL AND/OR PHYSICAL FORM</th> <th>MAXIMUM NUMBER OF MILLICURIES OF EACH FORM</th> <th>DESCRIBE PURPOSE OF USE</th> </tr> </thead> <tbody> <tr> <td>8512170162 851028 RE01 LIC30 06-23559-01</td> <td></td> <td>PDR</td> <td></td> </tr> </tbody> </table>		ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE	8512170162 851028 RE01 LIC30 06-23559-01		PDR																																								
ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	MAXIMUM NUMBER OF MILLICURIES OF EACH FORM	DESCRIBE PURPOSE OF USE																																													
8512170162 851028 RE01 LIC30 06-23559-01		PDR																																														

FORM NRC-313M  
(8-78)

"OFFICIAL RECORD COPY"

Oct-1-I

Applicant	Check No. 943
Amount/Fee Category	\$580.70
Type of Fee	Application
Date Check Recd.	10.11.85
Received By	Jacques

U.S. NRC  
FEE BRANCH

ML10

RECEIVED

P2:37

14274

# INFORMATION REQUIRED FOR ITEMS 7 THROUGH 23

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

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

## 24. PERSONNEL MONITORING DEVICES

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

d. OTHER (Specify)

Pencil dosimeter

As needed

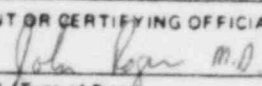
## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL			
NAME OF HOSPITAL <u>Middlesex Memorial Hospital</u> MAILING ADDRESS <u>28 Crescent Street</u> CITY <u>Middletown</u>		b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.	c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.
STATE	ZIP CODE		
CT	06457		

## 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 170.31, 10 CFR 170)</small>		b. APPLICANT OR CERTIFYING OFFICIAL (Signature) <div style="text-align: center;"></div>	
(1) LICENSE FEE CATEGORY <div style="text-align: center;">7C</div>		(1) NAME (Type or Print) <u>John E. Rogan M.D.</u>	
(2) LICENSE FEE ENCLOSED \$ <u>580.00</u>		(2) TITLE <u>Physician</u>	
		c. DATE <u>September 15, 1985</u>	

Medical Isotope Committee

Proposed facility is an outpatient private practice office and therefore in accordance with paragraph 35.11 of 10 CFR Part 35 is exempt from committee requirement.

Item 7

September 15, 1985

TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER

John E. Rogan M.D.

2. STATE OR TERRITORY IN  
WHICH LICENSED TO  
PRACTICE MEDICINE  
Connecticut

3. CERTIFICATION

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
1. American Board of Internal Medicine	Diplomat	July 1982
2. Cardiovascular Medicine	Board Eligible	July 1985

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	see page 5b		
b. RADIATION PROTECTION	" "		
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	" "		
d. RADIATION BIOLOGY	" "		
e. RADIOPHARMACEUTICAL CHEMISTRY	" "		

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

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
$^{99m}\text{Tc}$	2Ci	Hartford Hospital	3 months	cardiovascular imaging
$^{201}\text{Tl}$	40mCi	Hartford Hospital	3 months	myocardial imaging



TRAINING IN BASIC RADIOISOTOPE  
HANDLING TECHNIQUES

TRAINEE:

John Rogan, M.D.

NAME

TITLE

303 Campfield Avenue

ADDRESS

Hartford

Connecticut

06114

CITY

STATE

ZIP

COURSE TITLE: BASIC MEDICAL RADIATION PHYSICS

LOCATION WASHINGTON

DATE: COMMENCED April 25, 1985

COMPLETED April 29, 1985

COURSE TITLE: RADIATION PHYSICS ON NUCLEAR MEDICINE

LOCATION NEW YORK

DATE: COMMENCED June 27, 1985

COMPLETED June 26, 1985

COURSE TITLE: MEDICAL RADIATION BIOLOGY AND  
RADIATION SAFETY

LOCATION BOULDER

DATE: COMMENCED March 21, 1985

COMPLETED March 29, 1985

COURSE TITLE: MEDICAL RADIATION CHEMISTRY AND  
RADIOPHARMACEUTICALS

LOCATION CHICAGO

DATE: COMMENCED April 11, 1985

COMPLETED April 21, 1985

SUMMARY OF FIELD OF TRAINING HOURS DISTRIBUTION

FIELD OF TRAINING  
A

LECTURE/LABORATORY  
(HOURS)  
C

a. Radiation Physics and  
Instrumentation

100

b. Radiation Protection

30

c. Mathematics Pertaining to  
the use and measurement  
of Radioactivity

20

d. Radiation Biology

20

e. Radiopharmaceutical  
Chemistry


30

TOTAL HOURS OF LECTURE/LABORATORY

200

VALID ONLY  
IF SEALED

AUTHORIZATION: This document is valid for the individual, dates and  
hours as stated above and supported by the seal.  
If validation, records or other information is required  
by the Regulatory Agency, contact the undersigned.

  
Charles Herbert Rose, MA, MSPH, D(ABSNM)  
Telephone (303) 449-4621



## 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

John E. Rogan M.D.

STREET ADDRESS

90 South Main Street

CITY

Middletown

STATE

Ct

ZIP CODE

06457

## 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		(1)a. MUGA- 340 - for determination of chamber size, ejection and for evaluation of wall motion abnormalities. b. Exercise stress MUGA - 6 for determination of ejection fraction and evaluation of wall motion before and after graded exercise. c. First pass studies - 4 - for determination of right ventricular function and detection of shunts. d. Infarct-avid scans (pyrophosphate) - 4 for radionuclide detection of myocardial infarction.
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Sr-76	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING	see below	
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING	354 (1)	
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			

PRECEPTOR STATEMENT (Continued)			
2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)			
ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA, AND BONE METASTASES		(2) Assessment of myocardial perfusion immediately after graded exercise and in the re- distribution phase.
P-32 (Colloid)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	TREATMENT OF HYPERTHYROIDISM		
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT		
I-125 or Ir-192	INTERSTITIAL TREATMENT		
	TELETHERAPY TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT		
Sr-90	TREATMENT OF EYE DISEASE		
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR		
Sr-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other	201 Thallous chloride	192 (2)	

3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING	
July 1, 1983 to June 21, 1985	
400 hours - total training	

4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:	5. PRECEPTOR'S SIGNATURE
a. NAME OF SUPERVISOR	<i>Ronald J. Rosenberg MD</i>
Ronald J. Rosenberg M.D.	
b. NAME OF INSTITUTION	7. PRECEPTOR'S NAME (Please type or print)
Hartford Hospital	Ronald J. Rosenberg M.D.
c. MAILING ADDRESS	8. DATE
80 Seymour Street	
d. CITY	
Hartford, CT. 06115	June 20, 1985
6. MATERIALS LICENSE NUMBER(S)	
06-00253-04	

FORM NRC-313M-SUPPLEMENT B  
(8-78)



JC

POST OFFICE BALANCE DELIVER

STATE OF CONNECTICUT  
**Department of Health Services**

Pursuant to the provisions of the General Statutes of the State of Connecticut

• JOHN E ROGAN MD  
 303 CAMPFIELD AVE  
 HARTFORD CT 06114

EXPIRATION DATE		
MONTH	DAY	YEAR
03	31	86
FEE \$160.00		
022950		
SERIAL NUMBER		

Is Licensed and is hereby registered with this department as a:

PHYSICIAN AND SURGEON

*John E. Rogan MD*  
 DEPARTMENT OF HEALTH SERVICES

*Douglas D. Lloyd MD*  
 DEPARTMENT OF HEALTH

APPENDIX C  
INSTRUMENTATION

1. Survey meters

- a. Manufacturer's name: Bicron Electronic Products (NPI)  
Manufacturer's model number: 50  
Number of instruments available: 1  
Minimum range: 0 mR/hr to 0.5 mR/hr  
Maximum range: 0 mR/hr to 50 mR/hr
- b. Manufacturer's name: Bicron Electronic Products (NPI)  
Manufacturer's model number: RS0-5  
Number of instruments available: 1  
Minimum range: 0 mR/hr to 5 mR/hr  
Maximum range: 0 mR/hr to 5000 mR/hr

2. Dose calibrator

Manufacturer's name: Victoreen (Nuclear Associates)  
Manufacturer's model number: Deluxe Isotope Calibrator 34-056  
Number of instruments available: 1

3. Instruments used for diagnostic procedures

Type of Instrument	Manufacturer's Name	Model No.
Gamma camera	Siemens	Pho-Gamma V

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

Item 9  
September 15, 1985

Calibration of Instruments

As per Appendix D, Regulatory Guide 10.8, Revision 1\*

October, 1980

## Facilities and Equipment

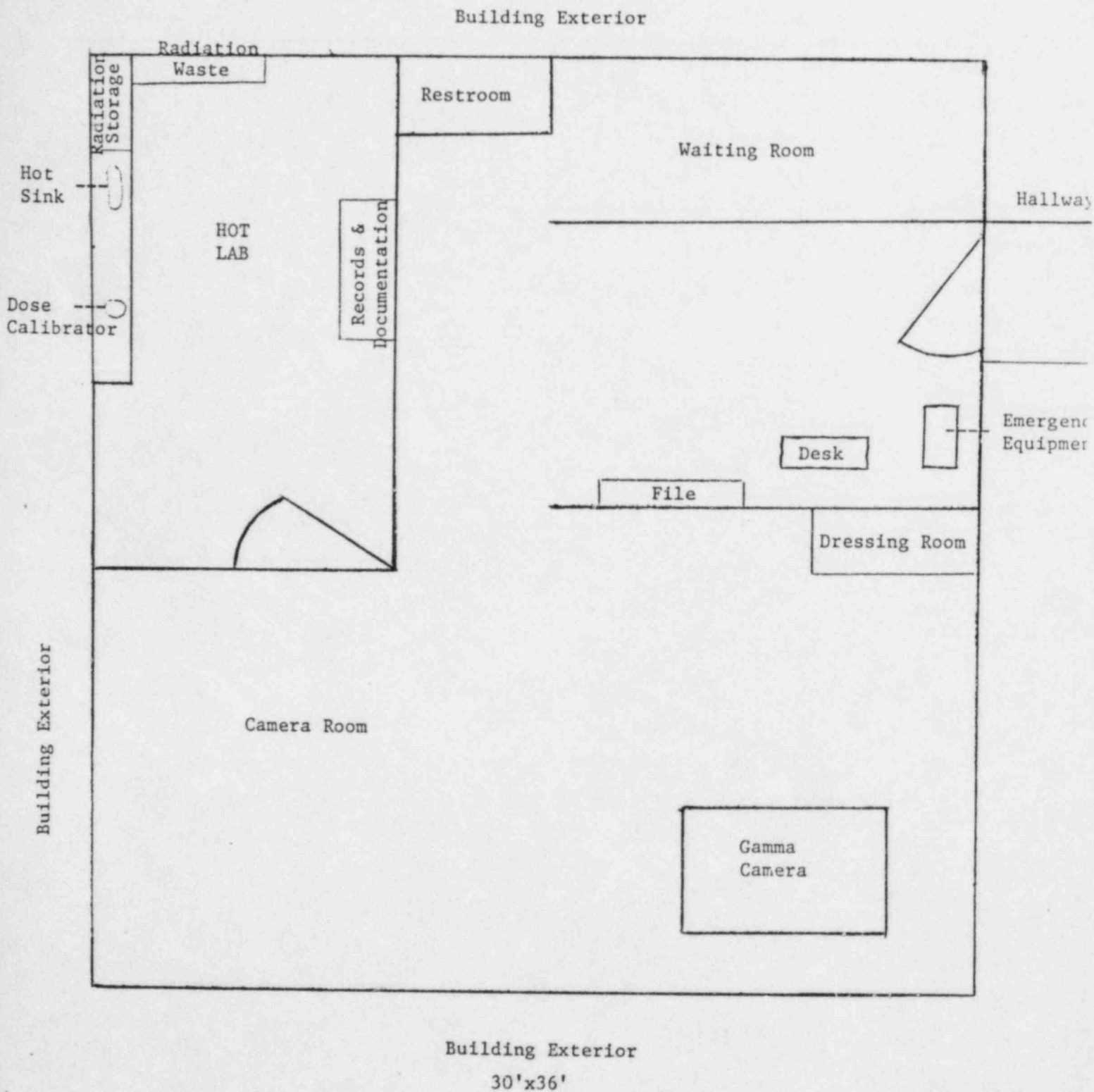
The facility is a one floor addition to an existing building. It is bound on three sides by the exterior and on the fourth side by a hallway connecting to the main building.

We presently anticipate using a central pharmacy utilizing unit dose quantities of radiopharmaceuticals to minimize radioactive storage and waste.

Received radiopharmaceuticals will be checked for external contamination in a low background count area just outside the hot lab. They will then be unpackaged on the workbench to the left in the hot lab. They will subsequently be stored in a shielded area at the far end of the hot lab workbench until used.

Two shielded waste containers of sufficient size to hold approximately four weeks quantity of waste each will be placed at the far end of the hot lab. The first will be used for four weeks then held for decay in storage while the second container is used.

A drawing of the facility is shown on the subsequent page.



Item 11  
September 15, 1985



### Personnel Training Program

1. Access to restricted areas (i.e. areas containing radioactive material and waste) will be restricted to users, technicians and security personnel. Housekeeping work will be performed by laboratory personnel and not by housekeeping personnel. The housekeeper supervisor will receive an initial memorandum in writing outlining the contents of radioactive material in the laboratory, potential dangers and person (RSO) to contact in event of any problems.
2. Technicians and clerical personnel in the facility will receive orientation prior to starting work in the facility in lecture form as to:
  - a. layout of the facility with emphasis on location of radioactive material and waste storage. This will be reviewed annually.
  - b. procedures to be performed along with appropriate safety procedures to be followed - to be reviewed quarterly and at the time of initiation of any new procedure.
  - c. review of the terms of the license as to rules and regulations to be followed as well as all terms pertaining to radiation safety - reviewed annually.
  - d. pertinent NRC regulations reviewed annually.
  - e. obligation to report unsafe conditions to RSO - reviewed annually.
  - f. appropriate response to emergencies and unsafe conditions including location of emergency equipment - reviewed annually.
  - g. potential dangers of radioactive material - reviewed annually.
  - h. right to be informed of level of radiation exposure and bioassay results.
  - i. location of posted copies of and pertinent regulations, licenses and license conditions in compliance with 10 CFR Part 19 - reviewed annually and with any change in regulations or terms of the license.

Procedures for Ordering and Accepting Delivery  
of Radioactive Material

1. The Supervisory Nuclear Medicine Technologist will place all orders for radioactive materials and will ensure that the requested materials and quantities are authorized by the license and that possession limits are not exceeded.
2. A system for ordering and receiving radioactive materials will be established and maintained. The system will consist minimally of the following:
  - a. Ordering of routinely used materials
    - (1) Written records that identify the isotope, compound, activity levels, and supplier, etc. will be used.
    - (2) The written records will be referenced when opening or storing radioactive shipment.
  - b. Ordering of specially used materials (e.g., therapeutic uses)
    - (1) A written request\* will be obtained from the physician who will perform the procedure.
    - (2) Persons ordering the materials will reference the physician's written request when placing the order. The physician's request will indicate isotope, compound, activity level, etc.
    - (3) The physician's written request will be referenced when receiving, opening, or storing the radioactive material.
  - c. It is essential that written records\* be maintained for all ordering and receipt procedures.
3. During normal working hours, carriers will be instructed to deliver radioactive packages directly to the Nuclear Medicine Department.
4. During off-duty hours, security personnel, or other designated individuals will accept delivery of radioactive packages in accordance with the procedures outlined in the attached memorandum.

Item 13  
September 15, 1985

\* In the case of special orders, the physician's written request and appropriate shipping/receipt records will be referenced and the dose assayed prior to its administration.

Item 13  
September 15, 1985

MEMORANDUM

MEMORANDUM FOR : Security Personnel

FROM: John E. Rogan M.D. Nuclear Medicine Laboratory

SUBJECT: RECEIPT OF PACKAGES CONTAINING RADIOACTIVE MATERIAL

Any packages containing radioactive material that arrive between 4:30 p.m. and 8:00 a.m. or on Saturdays or Sundays shall be signed for by the Security guard on duty and taken immediately to the Nuclear Medicine Department. Unlock the door, place the package on top of the counter just beyond the sink in the back room. Relock the door.

If the package is wet or appears to be damaged, immediately contact the hospital Radiation Safety Officer. Ask the carrier to remain at the hospital until it can be determined that neither he nor the delivery vehicle is contaminated.

RADIATION SAFETY OFFICER: John E. Rogan M.D.

OFFICE PHONE: 347-4258 Area Code 203

HOME PHONE: (203) 346-5042

Procedures for Safely Opening Packages  
Containing Radioactive Material

As per Appendix F, Regulatory Guide 10.8, Revision 1\* October 1980

Item 14  
September 15, 1985



Radioactive Shipment Receipt Report

1. Date: \_\_\_\_\_ Time: \_\_\_\_\_ Name: \_\_\_\_\_
2. Condition of Package:  
\_\_\_\_\_ O.K. \_\_\_\_\_ Wet \_\_\_\_\_ Punctured \_\_\_\_\_ Crushed  
\_\_\_\_\_ Other
3. Radiation Units \_\_\_\_\_ mR/hr \_\_\_\_\_ Other
4. Measured Radiation Levels
  - a. Package surface \_\_\_\_\_ mR/hr
  - b. 3 Ft. from surface \_\_\_\_\_ mR/hr
5. Do Packing Slip and Vial Contents Agree
  - a. Radionuclide \_\_\_\_\_ yes \_\_\_\_\_ no
  - b. Activity \_\_\_\_\_ yes \_\_\_\_\_ no
  - c. Chem Form \_\_\_\_\_ yes \_\_\_\_\_ no
6. Wipe Results:
  - a. Outer \_\_\_\_\_ CPM= \_\_\_\_\_ DPM eff= \_\_\_\_\_
  - b. Final source container \_\_\_\_\_ CPM= \_\_\_\_\_ DPM eff= \_\_\_\_\_
7. Survey results of packing material and cartons \_\_\_\_\_ mR/hr, CPM
8. Disposition of package after inspection
  - a. Return to central pharmacy \_\_\_\_\_
  - b. Hold for decay in storage \_\_\_\_\_
  - c. Dispose of in regular trash (as per Appendix J) \_\_\_\_\_
9. If NRC/Carrier notification required, give time, date, and person notified.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Item 14

September 15, 1985

General Rules for the Safe Use of  
Radioactive Material

As per Appendix G, Regulatory Guide 10.8, Revision 1\*, October 1980

Item 15  
September 15, 1985

Emergency Procedures

As per Appendix H, Regulatory Guide 10.8, Revision 1\*, October 1980

RADIATION SAFETY OFFICER: John E. Rogan M.D.  
OFFICE PHONE: 347-4258 Area Code 203  
HOME PHONE: (203) 346-5042

Item 16  
September 15, 1985

Area Survey Procedures

As per Appendix I, Regulatory Guide 10.8, Revision 1\*, October 1980

Item 17

September 15, 1985

### Waste Disposal

1. Liquid waste will be disposed of in the sanitary sewer system in accordance with paragraph 20.303 of 10 CFR Part 20.
2. Other solid waste will be held for decay until radiation levels, as measured in a low background area with a low-level survey meter and with all shielding removed, have reached background levels. All radiation labels will be removed or obliterated, and the waste will be disposed of in normal trash.



Therapeutic Use of Radiopharmaceuticals

No therapeutic radiopharmaceuticals will be used in the facility.

Therapeutic Use of Sealed Sources

There will be no therapeutic use of sealed sources in the facility.

Procedures and Precautions for Use of Radioactive Gases

There will be no radioactive gases or aerosols used in the facility.

Item 21

September 15, 1985

Procedures and Precautions for Use of Radioactive Materials in Animals

There will be no use of radioactive materials in animals in the facility.

Item 22  
September 15, 1985

Procedures and Precautions for Use of Radioactive Materials Specified in Item 6b.

No radioactive materials are requested in Item 6b.



## APPENDIX O

### MODEL PROGRAM FOR MAINTAINING OCCUPATIONAL RADIATION EXPOSURES AT MEDICAL INSTITUTIONS ALARA

John E. Rogan M.D.

(Licensee's Name)

September 15, 1985

(Date)

#### 1. Management Commitment

- a. We, the management of this (medical facility, hospital, etc.), are committed to the program described in this paper for keeping exposures (individual and collective) as low as is reasonably achievable (ALARA). In accord with this commitment, we hereby describe an administrative organization for radiation safety and will develop the necessary written policy, procedures, and instructions to foster the ALARA concept within our institution. The organization will include a Radiation Safety Committee (RSC)<sup>1</sup> and a Radiation Safety Officer (RSO).
- b. We will perform a formal annual review of the radiation safety program, including ALARA considerations. This shall include reviews of operating procedures and past exposure records, inspections, etc., and consultations with the radiation protection staff or outside consultants.
- c. Modification to operating and maintenance procedures and to equipment and facilities will be made where they will reduce exposures unless the cost, in our judgment, is considered to be unjustified. We will be able to demonstrate, if necessary, that improvements have been sought, that modifications have been considered, and that they have been implemented where reasonable. Where modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.
- d. In addition to maintaining doses to individuals as far below the limits as is reasonably achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable level. It would not be desirable, for example, to hold the highest doses to individuals to some fraction of the applicable limit if this involved exposing additional people and significantly increasing the sum of radiation doses received by all involved individuals.

<sup>1</sup> Private practice physician licenses do not include an RSC.

#### 2. Radiation Safety Committee (RSC)<sup>2</sup>

- a. Review of Proposed Users and Uses
  - (1) The RSC will thoroughly review the qualifications of each applicant with respect to the types and quantities of materials and uses for which he has applied to ensure that the applicant will be able to take appropriate measures to maintain exposure ALARA.
  - (2) When considering a new use of byproduct material, the RSC will review the efforts of the applicant to maintain exposure ALARA. The user should have systematized procedures to ensure ALARA and shall have incorporated the use of special equipment such as syringe shields, rubber gloves, etc., in his proposed use.
  - (3) The RSC will ensure that the user justifies his procedures and that dose will be ALARA (individual and collective).
- b. Delegation of Authority

(The judicious delegation of RSC authority is essential to the enforcement of an ALARA program.)

  - (1) The RSC will delegate authority to the RSO for enforcement of the ALARA concept.
  - (2) The RSC will support the RSO in those instances where it is necessary for the RSO to assert his/her authority. Where the RSO has been overruled, the Committee will record the basis for its action in the minutes of the Committee's quarterly meeting.

<sup>2</sup> The RSO on private practice physician licenses will assume the responsibilities of the RSC under Section 2.

c. Review of ALARA Program

- (1) The RSC will encourage all users to review current procedures and develop new procedures as appropriate to implement the ALARA concept.
- (2) The RSC will perform a quarterly review of occupational radiation exposure with particular attention to instances where Investigational Levels in Table 0-1 below are exceeded. The principal purpose of this review is to assess trends in occupational exposure as an index of the ALARA program quality and to decide if action is warranted when Investigational Levels are exceeded (see Section 6).<sup>3</sup>
- (3) The RSC will evaluate our institution's overall efforts for maintaining exposures ALARA on an annual basis. This review will include the efforts of the RSO, authorized users, and workers as well as those of management.

3. Radiation Safety Officer (RSO)

a. Annual and Quarterly Review

- (1) Annual review of the radiation safety program. The RSO will perform an annual review of the radiation safety program for adherence to ALARA concepts. Reviews of specific procedures may be conducted on a more frequent basis.
- (2) Quarterly review of occupational exposures. The RSO will review at least quarterly the external radiation exposures of authorized users and workers to determine that their exposures are ALARA in accordance with the provisions of Section 6 of this program.
- (3) Quarterly review of records of radiation level surveys. The RSO will review radiation levels in unrestricted and restricted areas to determine that they were at ALARA levels during the previous quarter.

b. Education Responsibilities for ALARA Program

- (1) The RSO will schedule briefings and educational sessions to inform workers of ALARA program efforts.

- (2) The RSO will ensure that authorized users, workers, and ancillary personnel who may be exposed to radiation will be instructed in the ALARA philosophy and informed that management, the RSC, and the RSO are committed to implementing the ALARA concept.

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulation of the procedures that they will be required to follow.

- (1) The RSO will be in close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.
- (2) The RSO will establish procedures for receiving and evaluating the suggestions of individual workers for improving health physics practices and will encourage the use of those procedures.

d. Reviewing Instances of Deviation from Good ALARA Practices

The RSO will investigate all known instances of deviation from good ALARA practices and, if possible, will determine the causes. When the cause is known, the RSO will require changes in the program to maintain exposures ALARA.

4. Authorized Users

a. New Procedures Involving Potential Radiation Exposures

- (1) The authorized user will consult with, and receive the approval of, the RSO and/or RSC during the planning stage before using radioactive materials for a new procedure.
- (2) The authorized user will evaluate all procedures before using radioactive materials to ensure that exposures will be kept ALARA. This may be enhanced through the application of trial runs.

b. Responsibility of Authorized User to Persons Under His/Her Supervision

- (1) The authorized user will explain the ALARA concept and his/her commitment to maintain exposures ALARA to all persons under his/her supervision.
- (2) The authorized user will ensure that persons under his/her supervision who are

<sup>3</sup>The NRC has emphasized that the Investigational Levels in this program are not new dose limits but, as noted in ICRP Report 26, "Recommendations of the International Commission on Radiological Protection," serve as check points above which the results are considered sufficiently important to justify further investigations.

subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

##### 5. Persons Who Receive Occupational Radiation Exposure

- a. The worker will be instructed in the ALARA concept and its relationship to working procedures and work conditions.
- b. The worker will know what recourses are available if he/she feels that ALARA is not being promoted on the job.

##### 6. Establishment of Investigational Levels In Order to Monitor Individual Occupational External Radiation Exposures

This institution (or private practice) hereby establishes Investigational Levels for occupational external radiation exposure which, when exceeded, will initiate review or investigation by the RSC and/or the RSO. The Investigational Levels that we have adopted are listed in Table O-1 below. These levels apply to the exposure of individual workers.

Table O-1

*Investigational Levels  
(mrems per calendar quarter)*

	<i>Level I</i>	<i>Level II</i>
1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads	125	375
2. Hands and forearms; feet and ankles	1875	5625
3. Skin of whole body*	750	2250

\* Not normally applicable to nuclear medicine operations except those using significant quantities of beta-emitting isotopes.

The Radiation Safety Officer will review and record on Form NRC-5, "Current Occupational External Radiation Exposures," or an equivalent form (e.g., dosimeter processor's report), results of personnel monitoring not less than once in any calendar quarter as required by § 20.401 of 10 CFR Part 20. The following actions will be taken at the Investigational Levels as stated in Table O-1:

- a. Quarterly exposure of individuals to less than Investigational Level I.

Except when deemed appropriate by the RSO, no further action will be taken in those cases where an individual's exposure is less than Table O-1 values for the Investigational Level I.

- b. Personnel exposures equal to or greater than Investigational Level I, but less than Investigational Level II.

The RSO will review the exposure of each individual whose quarterly exposures equal or exceed Investigational Level I and will report the results of the reviews at the first RSC meeting following the quarter when the exposure was recorded. If the exposure does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate by the Committee. The Committee will, however, consider each such exposure in comparison with those of others performing similar tasks as an index of ALARA program quality and will record the review in the Committee minutes.

- c. Exposure equal to or greater than Investigational Level II.

The RSO will investigate in a timely manner the cause(s) of all personnel exposures equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation, actions taken, if any, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at the first RSC meeting following completion of the investigation. The details of these reports will be recorded in the RSC minutes. Committee minutes will be sent to the management of this institution for review. The minutes, containing details of the investigation, will be made available to NRC inspectors for review at the time of the next inspection.

- d. Reestablishment of an individual occupational worker's Investigational Level II to a level above that listed in Table O-1.

In cases where a worker's or a group of workers' exposures need to exceed Investigational Level II, a new, higher Investigational Level II may be established on the basis that it is consistent with good ALARA practices for that individual or group. Justification for a new Investigational Level II will be documented.

The RSC will review the justification for, and will approve, all revisions of Investigational Level II. In such cases, when the exposure equals or exceeds

the newly established Investigational Level II, those actions listed in paragraph 6.c above will be followed.

7. Signature of Certifying Official<sup>4</sup>

I hereby certify that this institution (or private practice) has implemented the ALARA Program set forth above.

<sup>4</sup>The person who is authorized to make commitments for the administration of the institution (e.g., hospital administrator) or, in the case of a private practice, the licensed physician.

Signature

John E. Rogan M.D.  
John E. Rogan M.D.

Name (print or type)

Physician

Title

Institution (or Private Practice) Name and Address

Middlesex Cardiology

90 South Main Street

Middletown, Ct. 06457



MIDDLESEX MEMORIAL HOSPITAL

28 CRESCENT STREET MIDDLETOWN, CONNECTICUT 06457 TELEPHONE 347-9471

September 6, 1985

John Rogan, M.D.  
90 South Main Street  
Middletown, Ct. 06457

Dear Dr. Rogan:

In response to your inquiry about inhospital admission of patients exposed to diagnostic radiation, I affirm the hospital's policy that these patients can be admitted under proper precautions and conditions existing at Middlesex Memorial Hospital.

Sincerely,

PRABHASH C. GANGULI, M.D.  
Chairman, Department of Medicine

PCG:jb  
cc: Medical Staff Office

Item 25  
September 15, 1985