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

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

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

J. B. Thomas Hospital
15 King Street
Peabody, MA 01960

TELEPHONE NO.: AREA CODE (617) 531 2900

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

Same

7B
9/30/81

2. PERSON TO CONTACT REGARDING THIS APPLICATION

F. X. Masse

TELEPHONE NO.: AREA CODE (617) 245 6600

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

a. ☐ NEW LICENSE
b. ☐ AMENDMENT TO LICENSE NO. _____
c. ☒ RENEWAL OF LICENSE NO. 20-14073-01

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

George Kury, M.D.
Thomas J. Lapine, M.D.
Joseph M. Baldwin, M.D.

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

Thomas J. Lapine, M.D.
with consultation from F.X. Masse' Associates

6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS *(In millicuries)*
10 CFR 31.11 FOR IN VITRO STUDIES	X	10
10 CFR 35.100, SCHEDULE A, GROUP I	X	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP II	X	AS NEEDED
10 CFR 35.100, SCHEDULE A, GROUP III	X	3 Curies
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 VERA, 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		
XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		

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

RECEIVED BY LFMB
Date 9/9/81
Log Sept #64 Rec. I
By Brown
Orig. To

FEE EXEMPT
ML10
00117
AUG 31 1981
"OFFICIAL RECORD COPY"

EX

24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)		SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	[✓] FILM	R. S. Landauer Jr. & Co.	Monthly
	[ ] TLD		
	[ ] OTHER (Specify)		
b. FINGER	[ ] FILM		
	[✓] TLD	R. S. Landauer, Jr. & Co	Monthly
	[ ] OTHER (Specify)		

c. OTHER (Specify)

25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL

NAME OF HOSPITAL

MAILING ADDRESS

CITY | STATE | ZIP CODE

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

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

26. CERTIFICATE
(This item must be completed by applicant)

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

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

(1) LICENSE FEE CATEGORY: City Hospital

(2) LICENSE FEE ENCLOSED: $ Exempt

b. APPLICANT OR CERTIFYING OFFICIAL *(Signature)* Edward C O'Keefe

(1) NAME *(Type or Print)* Edward C O'Keefe

(2) TITLE Administrator

c. DATE August 28, 1981

FORM NRC 313R (7-77) DRAFT

RADIATION SAFETY COMMITTEE

RESPONSIBILITY

The committee is responsible for:

1. Ensuring that all individuals who work with or in the vicinity of radioactive material have sufficient training and experience to enable them to perform their duties safely and in accordance with NRC regulations and the conditions of the license.

2. Ensuring that all use of radioactive material is conducted in a safe manner and in accordance with NRC regulations and the conditions of the license.

DUTIES

The committee shall:

1. Be familiar with all pertinent NRC regulations, the terms of the license, and information submitted in support of the request for the license and its amendments.

2. Review the training and experience of all individuals who use radioactive material and determine that their qualifications are sufficient to enable them to perform their duties safely and in accordance with NRC regulations and the conditions of the license.

3. Establish a program to ensure that all individuals whose duties may require them to work in the vicinity of radioactive material (e.g., nursing, security, and housekeeping personnel) are properly instructed as required by No.19.12 of 10 CFR Part 19.

4. Review for approval all requests for use of radioactive material within the institution. Approval shall be required before such work may begin.

5. Prescribe special conditions that will be required during a proposed use of radioactive material such as requirements for bioassays, physical examinations of users, and special monitoring procedures.

6. Review the entire radiation safety program at least annually to determine that all activities are being conducted safely and in accordance with NRC regulations and the conditions of the license. The review shall include an examination of all records, reports from the Radiation Safety Officer, results of NRC inspection, written safety procedures, and the adequacy of the institution's management control system.

7. Recommend remedial action to correct any deficiences identified in the radiation safety program.

8. Maintain written records of all committee meetings, actions, recommendations, and decisions.

9. Ensure that the byproduct material license is amended, when necessary, prior to any changes in facilities, equipment, policies, procedures, and personnel, as specified in the license.

J. B. Thomas Hospital

15 KING STREET. PEABODY. MASS. 01960
TELEPHONE 531-2900

1. One Picker Dual Magnuscanner 500D Serial #117

   a. Dual Probe height analyzer
   b. 2-5 inch crystals
   c. Dual recording system
   d. Imaging

2. One Picker Dyna Camera 4 Serial #231521

   a. 37 photomultiplier tubes
   b. 1/2 inch crystal
   c. Imaging

3. One Squibb CRC-17 Radioisotope Dose Calibrator Serial#17180
   a. Beta Gamma Ionization Chamber
   b. Range .luCi - 2 Ci
   c. Dose calibrator

4. One Baird Atomic Cutie Pie Survey Meter Serical#17601
   a. Beta, gamma window 0.85 mg/cm^2
   b. Measuring 0-1500 mr/hr.

5. One Ludlum Geiger Counter 14-B Model 05-375
   a. Beta, Gamma window 30mg/cm^2 surveying
   b. Measuring 0-50 mr/hr.

6. One Baird Atomic Automatic Scintillation Counter Serial#530
   a. 2 inch crystal gamma counting
   b. 100 sample capacity
   c. Pulse height analysis controls

7. One Picker Compac 120 Gamma Counter Serial #249079
   a. 2 inch crystal gamma counting
   b. 120 sample capacity
   c. Pulse height analyzers (2) six preset isotopes
   d. Data reduction equipment

Item 9

Dose Calibrator will be calibrated in accordance with ANSI N42.13-1978. The standard sources to be used in this calibration are Cs-137 (about 200 μCi) Ba-133 (about 200 μCi) and Cobalt-57 (1-5mCi). Each will be a commercial source of 5% or better accuracy in a multi-dose vial configuration. Linearity checks as described in the standard shall be performed at intervals not to exceed 3 months. Background checks and reference source checks will be performed and logged daily.

Camera and Scanner will be calibrated on each day of use using commercial standards and following manufacturers instructions.

CALIBRATION OF SURVEY INSTRUMENTS

Check appropriate items.

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

✓ 2. Calibration will be performed at two points on each scale used for radiation protection purposes, i.e., at least up to 1 R/hr.

The two points will be approximately 1/3 and 2/3 of full scale. A survey instrument may be considered properly calibrated when the instrument readings are within ±10 percent of the calculated or known values for each point checked. Readings within ±20 percent are considered acceptable if a calibration chart, graph, or response factor is prepared, attached to the instrument, and used to interpret readings to within ±10 percent. Also, when higher scales are not checked or calibrated, an appropriate precautionary note will be posted on the instrument.

3. Survey instruments will be calibrated

_____ a. By the manufacturer

_____ b. At the licensee's facility

(1) Calibration source

Manufacturer's name _____
Model no. _____
Activity in millicuries _____
or
Exposure rate at a specified distance _____
Accuracy _____
Traceability to primary standard _____

_____ (2) The calibration procedures in Section I of Appendix D will be used

or

_____ (3) The step-by-step procedures, including radiation safety procedures, are attached.

✓ c. By a consultant or outside firm

(1) Name F. X. Masse Associates Inc.

(2) Location Middleton, MA 01949

(3) Procedures and sources

✓ have been approved by NRC and are on file in License No. 20-17148-01

_____ have been approved by an Agreement State; a copy of the Agreement State license, the procedures, and a description of the sources are attached, and the consultant's report will contain the information on

_____ the attached "Certificate of Instrument Calibration."
_____ the consultant's reporting form as attached.

_____ are described in the attachment, and the consultant's report will contain the information on

_____ the attached "Certificate of Instrument Calibration."
_____ the consultant's reporting form as attached.

PERSONNEL TRAINING PROGRAM AND FREQUENCY

Training prior to the start of work and annually thereafter will be provided to radiation workers (e.g. technologists) and ancillary personnel whose duties may require them to work in the vicinity of radioactive material. Formal lectures of at least 3 hours duration will be provided to new radiation workers by one of the listed users with assistance from the consultant. Such instructions will include:

a. All terms of the license pertinent to radiation safety.

b. Areas where radioactive material is used or stored.

c. Potential hazards associated with radioactive material.

d. Radiological safety procedures appropriate to their respective duties.

e. Pertinent NRC regulations.

f. Rules and regulations of the licensee.

g. Obligation to report unsafe conditions to the Radiation Safety Officer.

h. Appropriate response to emergencies or unsafe conditions.

i. Right to be informed of their radiation exposure and bioassay results.

j. Locations where the licensee has posted or made available notices, copies of pertinent regulations, and copies of pertinent licenses and license conditions (including applications and applicable correspondence), as required by 10CFR Part 19.

An annual refresher course of at least one hour duration will review highlights of the above information, plus cover any changes in conditions or proceedures that have occurred in the interim. Similarly, formal instruction will be given whenever there is a significant change in duties, regulations, or terms of the license.

Ancillary personnel whose duties require them to work in the vicinity of radioactive material will be specifically informed on the nature of the hazard and precautions to be taken. This instruction will also be presented formally and will involve approximately one hour's duration.

PROCEDURES FOR ORDERING AND ACCEPTING DELIVERY
OF RADIOACTIVE MATERIAL

1. The Supervisory Nuclear Medicine Technologist places all orders for radioactive materials and ensures 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 is maintained. The system consists of the following:
   a. Ordering of routinely used materials
      (1) Written records that identify the isotope, compound, activity levels, and supplier, etc., are used.
      (2) The written records are referenced when opening or storing radioactive shipment.
   b. Ordering of specially used materials
      (1) A written request is obtained from the physician who will perform the procedure.
      (2) Persons ordering the materials reference the physician's written request when placing the order. The physician's request indicates isotope, compound, activity level, etc.
      (3) The physician's written request is 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 are instructed to deliver radioactive packages directly to the Nuclear Medicine Department.

4. During off-duty hours, security personnel accept delivery of radioactive packages in accordance with the procedures outlined in the attached sample memorandum.

SAMPLE MEMORANDUM

MEMORANDUM FOR: Security Personnel

FROM: Hospital Director

SUBJECT: RECEIPT OF PACKAGES CONTAINING RADIOACTIVE MATERIAL

Any packages containing radioactive material that arrive between 4:30 p.m. and 7:a.m. or on Sundays shall be signed for by the Security guard on duty and taken immediately to the Nuclear Medicine Department Hot Lab. Unlock the door, place the package on top of the counter immediately opposite the door, and 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 _____

OFFICE PHONE _____

HOME PHONE _____

ITEM 14

PROCEDURES FOR RECEIPT AND OPENING OF RADIONUCLIDE SHIPMENT

1) All packages shall be surveyed as soon as practicable after receipt. NRC regulation include the requirement that higher level shipments be inspected within three hours of receipt, further emphasizing the time requirement.

2) All measurements called for on the accompanying record sheets shall be made as follows:

1. Dose rate at surface and at 3 feet from the package as received shall be measured either with GM survey meter or with higher range instrument if necessary.

2. Surface wipe test on shipping container shall be made as indicated.

3. Wearing protective gloves, open package carefully, inspecting for signs of leakage or breakage.

4. Survey packing material as a further check for leakage.

5. Remove primary container (using tongs) from shipping container and smear primary container across tissue paper to further check for leakage. Survey tissue paper.

6. When it has been established that inner container is contamination free, place entire unshielded shipment in dose calibrator and check assay of contents.

ITEM 14

Record of Checking-In Shipments of Radioactive Material

Purc. Ord. No.	Rec. Date	Mat. Rec. Nuclide Amt	Lot No.	Dose Rate Surface (mrem/hr	Dose Rate @ 3' mrem/hr	Surface Wipe Test* dpm/100cm^2	Packing Contamination mr/hr	Primary Container Contamination mr/hr	Calibrator reading of total activity	Checked by	Comments

*Wipe test instructions: 1) Wipe approximately 100 cm^2 of each surface. 2) Count wipe using end window survey meter. 3) Calculate the net dpm using the efficiency posted on side of instrument. 4) Notify the consluting health physicist if: (a) Wipe test results exceeds 500 dpm/100 cm^2. (b) Dose rate on external surface exceeds 200 mrem/hr. (c) Dose rate at 3 feet exceeds 10 mrem/hr.

GENERAL RULES FOR SAFE USE OF RADIOACTIVE MATERIAL

1. Wear laboratory coats or other protective clothing at all times in areas where radioactive materials are used.

2. Wear disposable gloves at all times while handling radioactive materials.

3. Monitor hands and clothing for contamination after each procedure or before leaving the area.

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

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

   b. Do not store food, drink, or personal effects with radioactive material.

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 percent.

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. Personnel monitoring devices when not being worn to monitor occupational exposures should be stored in a designated low background area.

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 and properly shielded 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, unbreakable outer containers.

EMERGENCY PROCEDURES

MINOR SPILLS

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

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

3. 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. 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 RADIATION SAFETY OFFICER:

_____

_____

_____

AREA SURVEY PROCEDURES

1. All elution, preparation, and injection area will be surveyed daily with an appropriately low-range survey meter and decontaminated if necessary. For daily surveys where no abnormal exposures are found, only the date, the identification of the person performing the survey, and the survey results need be recorded.

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

3. Waste storage areas and all other laboratory areas will be surveyed weekly.

4. The weekly and monthly surveys will consist of :

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

   b. A series of wipe tests to measure contamination levels. The method for performing wipes will be sufficiently sensitive to detect 200 dpm per 100 cm^2 for the contaminant involved. Wipes of elution and preparation area or other "high background" areas will be removed to a low background area for measurement.

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

   a. Location, date, and identification of equipment used, including the serial number and pertinent counting efficiencies.

   b. Name of person conducting the survey.

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

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

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

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

6. Area will be cleaned if the contamination level exceeds 200 dpm/100 cm^2.

WASTE DISPOSAL

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

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

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

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

_____ Other (specify): _____

_____

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

_____ Returned to the manufacturer for disposal.

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

_____

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

_____ Other (specify): _____

_____

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

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

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

_____ Other (specify): _____

_____

4. The commercial waste disposal service used will be

_____

(Name) (City, State)

NRC/Agreement State License No. _____

I. Management Commitment

A. We, the management of this Medical Center, are committed to the program described in this paper for keeping exposures to ionizing radiation (individual and collective) as low as 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 includes a Radiation Safety Committee (RSC) 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. Modifications to operating and maintenance procedures and to equipment and facilities will be made where they will reduce exposure unless the cost, in our judgement, 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.

II. Radiation Safety Committee

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 assure 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 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.

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 L below are exceeded. The principle 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 paragraph VI).

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.

III. 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. Monthly review of Occupational Exposures. The RSO will review monthly the external radiation exposures of authorized users and workers to determine that their exposures are ALARA in accordance with the provisions of paragraph VI 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 an ALARA Program

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

2. The RSO will assure 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 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, determine the causes. When the cause is known, the RSO will require changes in the program to maintain exposures ALARA.

IV. 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 the Authorized User to Those He Supervises

1. The authorized user will explain the ALARA concept and his committment to maintain exposures ALARA to all of those he supervises.

2. The authorized user will ensure that those under his supervision who are subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

V. Persons Who Receive Occupational Radiation Exposure

a. The worker will be instructed in the ALARA concept and its relationship to his working procedures and work conditions.

b. The worker will know what recourses are available if he feels that ALARA is not being promoted on the job.

VI. Establishment of Investigational Levels in Order to Monitor Individual Occupational External Radiation Exposures

This institution hereby establishes Investigational Levels for occupational external radiation exposure which, when exceeded, will initiate review or investigation by the Radiation Safety Committee and/or the Radiation Safety Officer. The Investigational Levels that we have adopted are listed in Table 1 below. These levels apply to the exposure of individual workers.

Table 1

	Investigational Levels - (mrems per calendar quarter)	
	LEVEL I	LEVEL II
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

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 is required by 10 CFR 20, 20.401. The following actions will be taken at the Investigational Levels as stated in Table 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 I 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. He will report the results of his reviews at thr 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, 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 Committee 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. Re-establishment of an individual occupational worker's Investigational Level II Above That Listed In Table I.

In cases where a worker's or a group of worker's 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 Radiation Safety Committee will review the justification for, and will approve, all revisions of Investigational Levels II. In such cases, when the exposure equals or exceeds the newly established Investigational Level II, those actions listed in paragraph c above will be followed.

VII. Signature of Certifying Official

I hereby certify that this Institution has implemented the ALARA Program set forth above.

J. B. THOMAS HOSPITAL

Item 7 Supplement

The Medical Isotopes Committee consists of the three users listed in the application, a representative of the hsopital administration, and a representative of F. X. Masse Associates, our consulting health physicist. Dr. Kury, Chief of Nuclear Medicine serves as chairman of the Committee.

Item 8 Supplement

Qualifications of the proposed licensed users are established by the following:

Dr. Kury is currently listed on this license.

Dr. Baldwin is currently listed on the Hunt Memorial Hospital license #20-13396-01 for the medical application requested here therapy.

Dr. Lapine was certified by the American Board of Nuclear Medicine in 1973 and has been involved in the active practice of Nuclear Medicine both at J. B. Thomas Hospital and at Hunt Memorial Hospital since that time. Dr. Lapine was listed on the Chelsea Naval Hospital license as Chief of Nuclear Medicine and Radiation Safety Officer from 1970 to 1973.

Lynnfield Medical Associates, Inc.

NORTH SHORE MEDICAL PARK
ESSEX CENTER DRIVE
PEABODY, MASSACHUSETTS 01960

TELEPHONE 532-2800

THOMAS J. LAPINE, M. D.
INTERNAL MEDICINE AND THYROID DISEASE

BURNETT Q. PIXLEY, M. D.
INTERNAL MEDICINE AND CARDIOLOGY

FREDERIC S. SHMASE, M. D.
INTERNAL MEDICINE AND ONCOLOGY

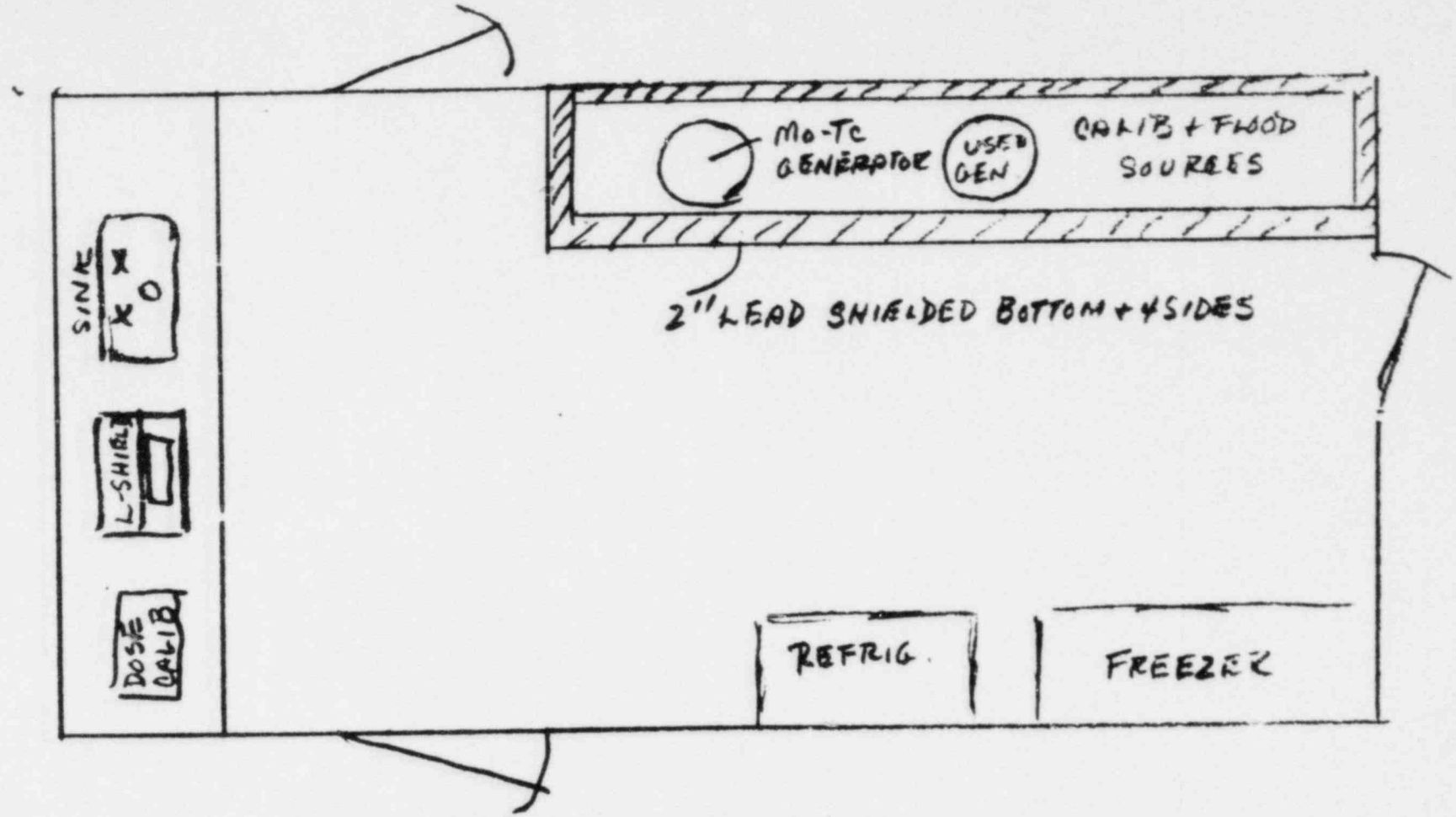
STEPHEN J. SALTZMAN, M. D.
INTERNAL MEDICINE

Married:	3 Children
Born:	February 7, 1941 at Ogdensburg, New York
High School:	St. Mary's Academy, Ogdensburg, New York, 1954-1958
College:	St. Michael's College, Winooski Park, Vt. 1958-1962 B.A.(Biology)
Medical School:	University of Ottawa, Canada, 1962-1966 M.D.
Internship:	National Naval Medical Center, Bethesda, Md. 1966-1967
Residency:	U.S. Naval Hospital, Chelsea, MA 1967-1970 a. New England Medical Center, Jan-March 1969 (Neurology) b. New England Medical Center, April-June 1969 (Cardiology) c. National Naval Medical Center, March-June, 1970 (Nuclear Medicin
Staff Member:	U.S. Naval Hospital, Boston, Chelsea, MA Internal Medicine, July 1970-June 1973 U.S. Naval Hospital, Boston, Chelsea, MA Chief, Nuclear Medicine Service, July 1970-June 1973 Private Practice, Internal Medicine, Nuclear Medicine, Lynnfield Medical Associates, Inc. 1973 - present Instructor in Medicine, Boston University School of Medicine, July 1970 - present Hunt Memorial Hospital, Danvers, MA Internal Medicine, October 1972-present J.B. Thomas Hospital, Peabody, MA Nuclear Medicine, August 1973 - present Union Hospital, Lynn, MA Internal Medicine, July 1971 - present
Diplomate:	National Board of Medical Examiners - 1967
Board Certification:	American Board of Internal Medicine - 1972 American Board of Nuclear Medicine - 1973
Licenses:	Massachusetts New York State
Fellowship:	American College of Physicians, April 1974

JOSEPH M. BALDWIN, M. D.
10 BERRY STREET
DANVERS, MASSACHUSETTS 01923

CURRICULUM VITAE

COLLEGE:	Providence College, Providence, R.I. Graduated--June 1950--B.S. Degree
MEDICAL EDUCATION:	Georgetown Medical School Washington, D.C. Graduated--June, 1954--M.D. Degree
POST GRADUATE MEDICAL TRAINING: Internship (Rotating) 1954-1955	Mercy Hospital, Buffalo, N.Y.
MEDICAL RESIDENCIES: First Year/1955/1956	Georgetown University Hospital Washington, D.C. /Junior Resident
Second Year/1956/1957	St. Vincent's Hospital/Worcester, MA Chief Medical Resident
Third year/1957/1958	Jersey City Medical Center Jersey City, N.J./Senior Resident
MEDICAL FELLOWSHIP: HEMATOLOGY/1958-1960	Jersey City Medical Center Jersey City, N.J.
Traineeship: 1959-1960	Direct Trainee (In Hematology)National Institute of Arthritis and Metabolic Diseases Jersey City Medical Center
Radiology P M 41: 1958-1959	Clinical Use of Radioactive Isotopes Mount Sinai Hospital/New York, N.Y.
Medicine P M 22: 1960	Laboratory Methods in Blood Banks Mt. Sinai Hospital/New York, N.Y.
DIRECTOR HEMATOLOGY AND NUCLEAR MEDICINE LABS 1960-1968	St. Vincent Hospital Worcester, MA
Internal Medicine, Hematology, Oncology and Nuclear Medicine Practice 1968 to present	10 Berry Street, Danvers, MA 01923
Member Nuclear Medicine Departments:	Hunt Memorial Hospital/Danvers, MA Josiah B. Thomas Hospital/Peabody, MA



SB THOMAS HOT LAB DETAIL

ITEM 11

ITEM 11

J.B. THOMAS HOSP