

APPLICATION FOR BYPRODUCT MATERIAL LICENSE  
INDUSTRIAL

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

a. NEW LICENSE

XX

b. AMENDMENT TO:  
LICENSE NUMBER  
18-16979-01

c. RENEWAL OF:  
LICENSE NUMBER

2. APPLICANT'S NAME (Institution, firm, person, etc.)

ST. JOSEPH HOSPITAL

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
207-947-8311 ext. 425

3. NAME AND TITLE OF PERSON TO BE CONTACTED  
REGARDING THIS APPLICATION

R.P. ANDREWS, M.D., CHIEF RADIOLOGIST

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION  
207-947-8311 ext 425

4. APPLICANT'S MAILING ADDRESS (Include Zip Code)

(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)

297 CENTER STREET  
BANGOR, MAINE 04401

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED  
(Include Zip Code)

297 CENTER STREET  
BANGOR, MAINE 04401

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL

(See Items 16 and 17 for required training and experience of each individual named below)

	FULL NAME	TITLE
a.	R.P. ANDREWS, M.D.	CHIEF RADIOLOGIST
b.	EMMA THOMAS, R.T., N.M.T.	CHIEF NUCLEAR MEDICAL TECHNOLOGIST
c.		

7. RADIATION PROTECTION OFFICER

R.P. ANDREWS, M.D.

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

8. LICENSED MATERIAL

LINE NO.	ELEMENT AND MASS NUMBER A	CHEMICAL AND/OR PHYSICAL FORM B	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source) C	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME D
(1)	$^{125}\text{I}$	ion exchange	AECL C324 or other NRC registered source	240 $\mu\text{Ci}$ each 300 $\text{mCi}$ each
(2)	$^{153}\text{Gd}$	$\text{GdO}_2$	Gulf Nuclear Model Gd-1	1200 $\mu\text{Ci}$ each 1500 $\mu\text{Ci}$ total
(3)	$^{131}\text{I}$	liquid or capsule	Mallinckrodt or medi-Physics	ONLY AS NEEDED
(4)				

License Fee Information

DESCRIBE USE OF LICENSED MATERIAL

on Next Page

- (1) The  $^{125}\text{I}$  sealed source listed above will be used in a LUNAR Radiation Corporation model SP2 bone mineral analyzer; NRC registration number NR-430-D-102-S
- (2) The  $^{153}\text{Gd}$  sealed source listed above will be used in a Lunar Radiation Corporation model DP3 bone mineral analyzer; NRC registration number NR-430-D-101-S
- (3)  $^{131}\text{I}$  will be used for therapeutic treatment of hyperthyroidism, cardiac conditions related to the thyroid, thyroid carcinoma.  $^{131}\text{I}$  will be stored in a radioiodine fume hood, Model 190-210 with charcoal filter trap.

## 9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED.	NAME OF MANUFACTURER	MODEL NUMBER
	A.	B.	C.
(1)	in Lunar SP2 scanner source holder	Lunar Radiation Corporation	SP2-SRC-0100-1
(2)	in Lunar DP3 scanner source holder	Lunar Radiation Corporation	A-SRC-0100-0
(3)	in radioiodine fume hood	Nuclear Medicine Consultant	190-210
(4)			

## 10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT	MANUFACTURER'S NAME	MODEL NUMBER	NUMBER AVAILABLE	RADIATION DETECTED (alpha, beta, gamma, neutron)	SENSITIVITY RANGE (milliroentgens/hour or counts/minute)
	A	B	C	D	E	F
(1)	GM	VICTOREEN	489	1	GAMMA	0.05 mR/hr
(2)	RADIOISOTOPE DOSE CALIBRATOR	CAPINTEC	CRC-17	1	GAMMA	0.5uCi
(3)	GAMMACAMERA	SIEMENS	ZLC-370S	1	GAMMA	2000CPM
(4)	RATEMETER	VICTOREEN	Ia	1	GAMMA	0.1r/hr

## 11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☒ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Neil A. Gaeta

35 Grove Street

Medford, Mass 02155 ANNUALLY

☐ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

## 12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
<input checked="" type="checkbox"/> (1) FILM BADGE	Siemens Gammasonics Inc. 2000 Nuclear Drive Des Plaines, IL 60018	<input checked="" type="checkbox"/> MONTHLY
<input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD)		<input type="checkbox"/> QUARTERLY
<input checked="" type="checkbox"/> (3) OTHER (Specify): <u>TLD finger badges</u>	Siemens Gammasonics Inc. 2000 Nuclear Drive Des Plaines, IL 60018	<input type="checkbox"/> OTHER (Specify): _____

## 13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☒ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC. sketch attached
- ☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
- ☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
- ☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

## 14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE. The depleted sealed source will be returned to the manufacturer for disposal. The manufacturer will be notified of the pending shipment and the anticipated delivery date. In the event the manufacturer is no longer in business, or for other reasons cannot accept the source, an alternative waste disposal will be sought. \*SEE NOTE \*

# INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. **FORMAL TRAINING IN RADIATION SAFETY.** Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
  - a. Principles and practices of radiation protection.
  - b. Radioactivity measurement standardization and monitoring techniques and instruments.
  - c. Mathematics and calculations basic to the use and measurement of radioactivity.
  - d. Biological effects of radiation.
17. **EXPERIENCE.** Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

RECEIVED BY LFMB	
Date	6/10/85
Log	June Pg 3-1
By	Jacques
Orig. To	
Action Compl	6/13/85

## 18. CERTIFICATE

(This item must be completed by applicant)

Applicant  
 Check No. 013840  
 Amount, Fee Category \$150.00 - \$30  
 Type of Fee. and  
 Date Check Rec'd 6/10/85  
 Received By Jacques

refunded

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, 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.

**WARNING.**—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED (See Section 170.31, 10 CFR 170)	b. CERTIFYING OFFICIAL (Signature) Sister Mary Norberta, C.S.S.F.
(1) LICENSE FEE CATEGORY:	c. NAME (Type or print) Sister Mary Norberta, C.S.S.F.
(2) LICENSE FEE ENCLOSED: \$	d. TITLE Executive Director
	e. DATE May 30, 1985

15. RADIATION PROTECTION PROGRAM.

The responsibilities of the Radiation Safety Officer will include:

1. Receiving shipments of the sealed source
2. Exchanging sources
3. Review of personnel film badge monitor
4. Radiation surveys
5. Semi-annual wipe test of sealed source
6. Source disposal
7. Emergency procedures

2. The procedures for source exchange will be explained and demonstrated during the two(2) days of on-site installation and training by a factory representative from LUNAR Radiation Corporation. This will include instruction on the installation of a replacement source. Installation of the source and use of the scanner will not occur prior to such training by the factory representative.

5. The procedure for wipe testing will be explained and demonstrated by the factory representative during the installation and training. The wipe test will be done by the RSO on a semi-annual basis. The instructions provided by the manufacturer will be followed. The wipe test kit will be provided by:

Siemens Gammasonics Inc.  
2000 Nuclear Drive  
Des Plaines, IL 60018  
Model QT-1

6. The depleted sealed source will be returned to the manufacturer for disposal. The manufacturer will be notified of the pending shipment and the anticipated delivery date. In the event the manufacturer is no longer in business, or for other reasons cannot accept the source, an alternative waste disposal will be sought.

7. In the event of an emergency, the RSO will be notified immediately. The phone number of the RSO and an alternative individual will be posted within the room. The alternative is listed in item 6.

8. Warning labels. The room where the scanner will be placed is #139. The entrance to this room will be posted with a sign bearing the trefoil radiation caution symbol (magenta on yellow) and the words:

CAUTION RADIATION AREA

CAUTION RADIOACTIVE MATERIALS

I<sup>131</sup> THERAPY-RADIATION PROTECTION PROGRAM.

1. Any patient receiving over 30mCi therapeutic dose must be admitted to a private room with a private toilet.
2. Cover all handles, knobs, and the telephone with small plastic bags.
3. Use disposable plates, cups, utensils and linens wherever possible. DO NOT DISPOSE OF THESE ITEMS. Save for the radiation safety officer.
4. Observe the time limitation as posted by the radiation safety officer. (See attached sheet)
5. Radiation warning signs must be kept displayed when put up by the radiation safety officer.

6. If patient vomits within 24 hours of having received the dose, becomes incontinent, experiences excessive sweating, or has a fecal accident within 48 hours, notify the radiation safety officer immediately. Do not dispose of vomitus or soiled clothes until material is monitored. Keep separate in a plastic container. Use rubber gloves for handling any contaminated material.

7. If patient soils bedding or clothing with urine or feces during the 72 hour period after the treatment dose, save the contaminated bedding or clothing in a laundry bag for monitoring by the radiation safety officer. Use rubber gloves for handling any contaminated material. Save all disposable items similarly.

8. No visitors that are under 18 years of age or are pregnant may be allowed to visit the patient.

9. Patient may have visitors, but they should be as far from the patient as is practical during their visit and observe the time limitation as posted.

10. Patient may use the bathroom as usual. Flush toilet three times following use.

11. If urine is being saved for any reason, label all containers with radioactive signs and handle with gloves. Signs should include three-bladed symbol, radionuclide, activity(approximate) and date.

12. All necessary nursing care to the patient may be performed without restriction. Just be brief and efficient.

13. Pocket dosimeters or film badges must be used by all nursing personnel when caring for the patient. They will be provided at the nursing station when required.

14. Special instructions; in case of emergency or death of the patient, notify the director of the nuclear medicine department immediately.

15. The attached chart will be affixed to the patient's hospital room door and will be filled out by the radiation Safety Officer with all pertinent Radiation Surveys completed.



### Radiation safety program: permanent implants and radiopharmaceutical therapy

Patient's name: \_\_\_\_\_ Physician's name \_\_\_\_\_ Room no. \_\_\_\_\_  
 Radionuclide: \_\_\_\_\_ Total activity: \_\_\_\_\_ Date: \_\_\_\_\_ Time of assay: \_\_\_\_\_  
 Therapy started: Date: \_\_\_\_\_ Time: \_\_\_\_\_ Room no. \_\_\_\_\_

**Nursing instructions:** Comply with all checked items.

- |   |   |
|---|---|
| <input type="checkbox"/> Patient must have private room and may not leave room.<br><input type="checkbox"/> Visitors, employees, and other personnel under 18 years are not permitted.<br><input type="checkbox"/> Pregnant visitors, employees, and other personnel are not permitted.<br><input type="checkbox"/> Visiting time permitted: _____ minutes.<br><input type="checkbox"/> Visitors must remain: _____ feet from patient.<br><input type="checkbox"/> Place laundry in linen bag and save.<br><input type="checkbox"/> Radiation monitors must be worn.<br><input type="checkbox"/> Housekeeping may not enter the room. | <input type="checkbox"/> A dismissal radiation monitoring must be done before patient is discharged.<br><input type="checkbox"/> All items must remain in the room until OK'd by Radiation Safety Officer.<br><input type="checkbox"/> Disposable gloves must be worn during patient care.<br><input type="checkbox"/> Do not exceed the occupancy times at each location.<br><input type="checkbox"/> Patient shall be discharged only when activity is less than _____.<br><input type="checkbox"/> Other instructions: _____ |
|---|---|

**Initial radiation survey**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Room no. \_\_\_\_\_ Survey by: \_\_\_\_\_

Use and complete the following tags: ☐ Door; ☐ Chart; ☐ Bed; ☐ Other \_\_\_\_\_

mr/hr at 6 feet at initiation of treatment: \_\_\_\_\_

mr/hr at 6 feet at time when patient activity is reduced to 30 mCi: \_\_\_\_\_; to 1.0 mCi \_\_\_\_\_

Location	Bedside	3 feet	6 feet	Entrance door	Adjacent room no.	
					Patient site	Other
mr/hr						
Occupancy time						

**Radiation monitoring and patient discharge**

Date					
mr/hr at 6 feet					
Occupancy time					

Activity for hospital discharge shall be less than 30 mCi; activity for change to a semi-private room shall be less than 1.0 mCi.

Activity at discharge: \_\_\_\_\_ Isotope: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

- ☐ Radiation monitoring of the room and patient items indicated no significant radiation levels present in the room.  
☐ Discharge instructions were given to the patient regarding household members.

Radiation monitoring by: \_\_\_\_\_ Patient discharge by: \_\_\_\_\_

WASTE DISPOSAL OF I<sup>131</sup>

No radioactive material will be disposed of be sewer (hot sink). Any materials containing or contaminated with radioactive materials may be held in storage until they decay to background levels, generally for ten half-lives, at which point they will be checked with a GM meter to assure that they have decayed to background levels and are for all practical purposes considered nonradioactive. These materials will then be subjected to incineration or taken to the trash bin. All lavel's indicating radioactivity will be defaced. A decay bin in the sub-basement, away from the general public and hospital personnel will be used to contain the I<sup>131</sup> containers until they reach natural radioactive background levels. This bin is locked and appropriately labeled with warning signs.

A receptacle having a lead liner and labeled appropriately with the yellow and magenta trefoil is provided in the nuclear medicine hot lab for contaminated material. Only known contaminated materials are disposed of here. If the contamination is questionable, the trash is checked with a G-M survey meter.

A vial that at one time contained radionuclides or that has radionuclides in an unusable concentration will be placed in the hot trash receptacle to await disposal.

CORRIDOR  
UNRESTRICTED  
AREA

CAMERA  
CONSOLE

INLET VENT  
350 CFM

IMAGING ROOM

EKG  
UNRESTRICTED  
AREA

HOT LAB  
RESTRICTED  
AREA

COMPUTER  
PRINTER

DOSE CALIBRATOR

RADIOACTIVE  
WASTE  
BIN

HOT PLATE

XENON UNIT  
AND TRAP

SINK

XENON STORAGE  
CAVE WITH 2"  
LEAD BRICKS

TABLE TOP  
LEAD  
BARRIER

GENERATOR

RADIO IODINE  
Fume hood  
TO BE ADDED  
TO HOT LAB

CAMERA

COLLIMATORS

20" EXHAUST FAN  
2920 CFM

WINDOWS

425 CFM

WINDOW A1

WINDOW A

OUTSIDE OF BUILDING - UNRESTRICTED AREA



# RECEIPT AND OPENING OF RADIOACTIVE MATERIALS

ALL PACKAGES SHOULD BE OPENED BY AUTHORIZED PERSONNEL IMMEDIATELY ON RECEIPT. IF PACKAGE ARRIVES DURING OFF-DUTY HOURS, IT SHOULD RECEIVE TOP PRIORITY ON THE ARRIVAL OF AUTHORIZED PERSONNEL.

1. Visually inspect each package for any sign of damage (for example, wetness, crushed, etc.) If damage is noted, stop procedure and notify the radiation safety officer.
2. Inspect each package for the presence of Department of Transportation (DOT) diamond-shaped radioactive white I, yellow II, or yellow III labels.
3. If no DOT label or a white I label is present, go to step 7.
4. If a DOT yellow II or Yellow III radioactive label is affixed to the package, proceed to step 5.
5. Measure the exposure rate a 3 feet from the package surface and record. If it is greater than 10mr/hr, stop procedure and notify the radiation safety officer. Verify that the reading in mr/hr is equal to or less than the transport index on the pkg.
6. Measure the surface exposure rate and record. If it is greater than 200mr/hr, stop procedure and notify the radiation safety officer; Contain pkg within the hot lab.
7. Put on gloves.
8. Open the outer package (following manufacturer's directions if supplied) and remove the packing slip. Open the inner package to verify contents (compare requisition, packing slips, and label on bottle), check the integrity of the final source container (inspect for breakage of seals or vials, loss of liquid, and discoloration of packing material). Check also that the shipment does not exceed your possession limits.
9. Wipe the external surface of the final source container with a moistened cotton swab or filter paper held with forceps; assay and record. (If material requires refrigeration, do so immediately.) (Applies only to shipments specified in Part 10, CFR 20.205 (b) or to packages with suspected contamination.)
10. Monitor the packing material and packages for contamination before discarding and record the results.
  - a. If contaminated, treat as radioactive waste.
  - b. If not contaminated, obliterate radiation labels before discarding in regular trash.
11. If excessive radiation levels, contamination leakage, or shortages are observed, notify the final delivering carrier and, by telephone and telegraph, the Regional Office of the Nuclear Regulatory Commission.

REVISED: 12/15/83

REVIEWED BY RADIATION SAFETY OFFICER:

*Robert P. Andrews* DATE *12/15/83*

DR. ROBERT P. ANDREWS  
RADIATION SAFETY OFFICER  
Home Phone #-234-2500  
Work Phone #-947-8311-Ext. 425

EMMA CARLE, NMT  
NUCLEAR MEDICINE TECHNOLOGIST  
Home Phone 943-8885  
Work Phone 947-8311-425

EMERGENCY PROCEDURES FOR RADIOACTIVE SPILLS  
CONTAIN, MONITOR, DECONTAMINATE

Monitor spills(Diagnostic activities-liquid)

1. Notify persons in the immediate area that a spill has occurred.
2. Cover the spill with absorbent pads.
3. Limit access to the area to only those persons dealing with the spill.
4. Survey(thin end-window GM survey meter) potentially contaminated personnel before they disperse and initiate decontamination as necessary.
5. Clean up the spill, wearing disposable gloves and using remote handling tongs, remove absorbent pads and place in double plastic bags. If liquid remains, use additional pads. Place pads in the double plastic bags. Decontaminate involved surfaces until swipes reveal no removable contamination.
6. Notify the Radiation Safety Officer.\*\*\*

Major Spills(Therapy activities-liquid)

1. Notify persons in the immediate area that a spill has occurred.  
All persons not involved with the spill should vacate the room at once.
2. Cover the spill with absorbent pads.
3. Vacate room.
4. Close the door to the room and prevent entry into the room.
5. Limit the movement of displaced persons so as to confine the spread of contamination.
6. Survey(then end-window GM survey meter) potentially contaminated personnel before they disperse and initiate decontamination as necessary.
7. If the spill is on skin, flush thoroughly and wash with mild soap and lukewarm water.
8. If the spill is on clothing, discard outer or protective clothing at once. Place in double plastic bags. (Shield and/or store in remote area)
9. Notify the Radiation Safety Officer IMMEDIATELY \*\*\*

\*\*RADIATION SAFETY OFFICER:

R.P.Andrews,MD. Extension 425-on duty  
234-2500 off duty

Emma Carle,N.M.T. extension-425- on duty  
943-8885 off duty

MEMORANDUM FOR: Security Personnel

FROM: Robert P. Andrews, M.D.

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. Unlock the door, place the package on the floor 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: Robert P. Andrews, M.D.

OFFICE PHONE: 947-8311 Ext 424

HOME PHONE: 234-2500

Reviewed | 4/10/84

10.8-31

Reviewed | 11/25/85

16. FORMAL TRAINING IN RADIATION SAFETY

R.P. ANDREWS, M.D.

- a. Principles and practices of radiation protection.

4-year training program Maine Medical Center-residency in Radiology  
1963-1967.

1968-Board Certification in Radiology including Nuclear Medicine  
and Radiation Therapy. 1969 to present Active Clinical Practice in  
Nuclear Medicine-

- b. Radioactivity measurement standardization and monitoring  
techniques and instruments.

Same as answer A.

- c. Mathematics and calculations basic to the use and  
measurement of radioactivity.

Same as Answer A.

- d. Biological effects of radiation

Same as Answer A.

17. EXPERIENCE RESUME ATTACHED

1968 to 1977-Multiple year practice in Radiation Therapy including fixed source  
radiotherapy with 60 Cobalt and liquid radioactive therapy with radioactive iodine  
131 and P 32.

Experience with multiple ablative thyroid procedures in benign as well as malignant  
disease.

1977-to present-observation of multiple additional thyroid therapy procedures at  
Eastern Maine Medical Center. Supervision and certification of two colleagues  
in iodine therapy at Eastern Maine Medical Center during this period for Nuclear  
Regulatory Commission Licensure. The plan is to resume the treatment of patients  
with iodine therapy at a second institution where Nuclear Medicine capability now  
exists to provide such service but which hasn't been available or requested by  
the clinicians in this area until the last couple of years.

R.P. Andrews, M.D.

a. Principles and practices of radiation protection

Radiation Safety Officer-Eastern Maine Medical Center 1972 to 1977

Radiation Safety Officer-St. Joseph Hospital-1977 to present.

Radiation Safety Officer-Maine Air National Guard 1982 to present.

Multiple meetings, papers and seminars on Nuclear Medicine Subject, both with and without additional subjects of interest to radiology.

See attached appendices.

1972 Board Certification by the American Board of Nuclear Medicine.



16. FORMAL TRAINING IN RADIATION SAFETY

EMMA CARLE-THOMAS, R.T., N.M.T.

a. Principles and practices of radiation protection.

Two year training program- Thayer Hospital School of Radiologic Technology 1962 to 1964  
On-the-job training Middlesex Memorial Hospital, Middletown, Conn; Mount Sinai Hospital, Hartford, Conn; Millinocket Hospital, Millinocket, Maine; St. Joseph Hospital, Bangor, Maine  
Attend Annual New England Society of Nuclear Medicine Meetings every year. Attend the spring and fall sessions of the Maine "grass roots" Nuclear Medicine society meetings.  
Subscribe to and read the Journal of Nuclear medicine.  
Buy and listen to continuing education tapes for VOICE credits.

b. Radioactivity measurement standardization and monitoring techniques and instruments.

Same as answer a.

c. Mathematics and calculations basic to the use and measurement of radioactivity.

Same as answer a.

d. Biological effects of radiation.

Same as answer a.

17. +Experience

RESUME ATTACHED

On-the-job training. Primary useful training was obtained at Mount Sinai Hospital in Hartford, Connecticut.  $^{131}\text{I}$  Therapy was routinely performed there. The radiologist in charge of Nuclear Medicine asked me to double check his mathematic calculations, so I had an understanding of the derivation of the particular dosage. This also helped alleviate any mathematical errors. I assisted in every treatment and follow-up visits of all therapy patients. We did several ablative doses for thyroid carcinoma during my employment there.

## Curriculum Vitae

Emma M. Carle-Thomas R.T., N.M.T.

### NUCLEAR MEDICAL TECHNOLOGIST

Box 68A, R.F.D.1  
Milo, Maine 04463  
TEL:(207) 943-8885

Excellent health  
married  
5'8" 160 pounds  
41 years old

OBJECTIVE: To work full time in a supervisory capacity in Nuclear Medicine.

EXPERIENCE: Twenty years hospital experience, with the majority of work in Nuclear Medicine since 1967.

1893-present Saint Joseph Hospital, 297 Center Street, Bangor, Maine 04401  
Chief Nuclear Medical Technologist

Full time position in charge of Nuclear Medicine Department consisting of one gamma camera with computer. Responsible for ordering and receipt of radioactive shipments, patient flow, quality assurance of all radiopharmaceutical kits; assist with the preparation of the annual projected budget; assay and monitor stored depleting radionuclides to determine when background decay has been obtained before being discarded in normal trash.

1978-1983 Millinocket Regional Hospital, Millinocket, Maine  
Radiologic Technologist

Full-time staff technologist with primary duty of relieving Nuclear Medical Technologist for vacations, days off, and assisting when work load in Nuclear Medicine required extra staff.

1972-1978 Mount Sinai Hospital, Hartford, Connecticut  
Chief Nuclear Medical Technologist

Was in charge of department consisting of two gamma cameras and one rectilinear scanner; responsible for patient flow, quality assurance of all radio-isotope kits; ordering of all pharmaceutical supplies and radionuclides; administered therapeutic dosages of I131 under the supervision of the Radiologist in charge; assisted with the preparation of the annual budget and was actively involved with research projects, as we had an investigational license from the NRC. Co-authored two research papers in 1976. Directed work of two staff technologists. Hospital consisted of 383 beds.

1964-1972 Middlesex Memorial Hospital, Middletown, Connecticut.  
Nuclear Medical Technologist

Worked as staff Radiologic Technologist until 1967, when opening was created for Nuclear Medicine. Was sent by hospital for training and ran the Nuclear Medicine Department,

which consisted of one five inch Picker rectilinear scanner and myself. Had full charge of all in vivo patient testing in this 150 bed hospital, reporting to the Radiologist directly. Trained two technicians, who have both since become active and registered in this field. One technician is now Chief Technologist at Hartford Hospital in Hartford, Connecticut.

EDUCATION

Thayer Hospital School of Radiologic Technology  
Thayer Hospital  
North Street  
Waterville, Maine

ANDREWS, LYNCH & FIELD, RADIOLOGISTS, P.A.

DIAGNOSTIC IMAGING:

Robert P. Andrews, M.D.  
Richard L. Field, M.D.  
Charles T. Lynch, Jr., M.D.  
John M. Long, M.D.  
Don E. Factor, M.D.  
Hugh J. Caggiano, M.D.  
Douglas F. Cowan, M.D.  
Michael D. Halber, M.D.  
Michael S. Pancoe, M.D.  
Frank L. D'Amelio, M.D.  
Frank M. Mroz, M.D.

LOCATIONS:

Eastern Maine Medical Center  
489 State Street  
Bangor, Maine 04401  
St. Joseph Hospital  
297 Center Street  
Bangor, Maine 04401  
Mayo Regional Hospital  
Dover-Foxcroft, Maine 04426

RADIATION ONCOLOGY:

Peter M. Lambert, M.D.  
Paul C. Szal, M.D.

Billing Office:

388 State Street  
Bangor, Maine 04401  
207-947-0554

CURRICULUM VITAE  
Robert P. Andrews, M.D.  
PERSONAL

NAME: Robert Patterson Andrews

Date of Birth: 7 August, 1935  
Newton, Massachusetts

SSAN: 028-24-8571

FATHER: George R. Andrews, Pharmacist, Sanford, Maine

MOTHER: Helen Babcock, Deceased

SIBLINGS: King Wallace, Gary George, both deceased

MARRIED: Berna L. Thibodeau, Date of Birth: 25, May 1941, Caribou, Maine

CHILDREN: Beth Ann-Date of Birth 16 September 1965.

Amy Lynn-Date of Birth 13 July 1967.

Jeff Lawrence-Date of Birth 27 September 1969.

HOME ADDRESS: RFD #1-Box 1479-Newburgh, Maine 04444-9741  
Telephone: 207-234-2500

OFFICE ADDRESS: 297 Center Street, Bangor, Maine 04401  
Telephone-207-947-8311-Ext. 424

LICENSED: State of Maine Board of Registration in Medicine, 1964 to present-  
#5671- Renewal # 1094; 1982-1984

MILITARY SERVICE: 1952-1967 U.S. Naval Reserve  
1954-1956 Active Duty-USSCK. Bronson-Rate-Padarman Second Class,  
Leading Petty Officer  
1954-September to December Honors Graduate Radar School, Norfolk, Virginia  
1960-Commissioned ensign, USNR Medical Corps.  
1963-Promoted to Lieutenant USNR Medical Corps.  
1967-Honorable discharge.

BUSINESS: Owner, Mad River Outfitters of Eastern Maine, established 1974.

CURRENT APPOINTMENTS

Director of Radiology-St. Joseph Hospital, Bangor, Maine  
Staff Radiology-Eastern Maine Medical Center, Bangor, Maine  
Consulting Radiologist-Mayo Regional Hospital, Dover-Foxcroft, Maine.  
University of Maine-Orono Health Center,  
Bangor Mental Health Institute.  
Medical Director- Eastern Maine Vocational Technical Institute, School of Medical Radiography  
Team Chairman: Joint Review Committee in Radiologic Technology.  
Major, Maine Air National Guard, 101 st Medical Clinic, Bangor, Maine

# ANDREWS, LYNCH & FIELD, RADIOLOGISTS, P.A.

## DIAGNOSTIC IMAGING:

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John M. Long, M.D.  
Don E. Factor, M.D.  
Hugh J. Caggiano, M.D.  
Douglas F. Cowan, M.D.  
Michael D. Halper, M.D.  
Michael S. Pancoe, M.D.  
Frank L. D'Amelio, M.D.  
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## EDUCATION

1941-1949	Elementary Schools, Quincy, Mass.
1949-1953	Academic Scholarship to Thayer Academy, Braintree, Mass. High School Graduate
1953-1954	University of Vermont, School of Engineering, Interruption for Military Service
1956-1959	Tufts University, Major in Political Science, Minor in Pre-Medical subjects, A.B. Degree
1959-1963	Tufts University School of Medicine, M.D. Degree.
1964→	Diplomate National Board of Medical Examiners
1963-1964	Rotating internship, Maine Medical Center, Portland, Maine
1964-1967	Residency in General Radiology, Maine Medical Center, Portland, Maine
1966-Sept. to Oct.	Resident in Pediatric Radiology, Childrens' Hospital Medical Center, Boston, Mass.
1970-1984	Qualified for American Medical Association Physicians Recognition Award for accomplishments in continuing Medical Education.

## MEMBERSHIP AND PROFESSIONAL ORGANIZATIONS-OFFICES HELD

1959-1963	Class President-Tufts University School of Medicine, Class of 1963
1963	Tufts University School of Medicine, Benjamin Spector Anatomy Prize
1965-1967	President House Officers Association, Maine Medical Center, Portland, Maine
1967- to present	Staff Radiologist-Eastern Maine Medical Center, Bangor, Maine
1967 to present	Consulting Staff Bangor Mental Health Institute, U.M. Health Center
1968	Board Certification in Radiology
1968-1980	Radiation Therapy at Eastern Maine Medical Center, Bangor, Maine
1969-1973	Hospital Representative Regional Medical Program, Augusta, Maine
	Member Comprehensive Health Planning Advisory Board of Maine
1970-1972	Director Eastern Maine General School of Medical Radiography,
1970-1972	Executive Committee, Eastern Maine Medical Center, Bangor, Maine
1971-1972	Secretary-Executive Committee, Eastern Maine Medical Center, Bangor, Maine
1972-to present	Medical Director and Chairman of Advisory Committee, Eastern Maine Vocational Technical Institute, School of Medical Radiography.
1972-	Board Certification in Nuclear Medicine
1974-to present	Site Surveyor Joint Review Committee on Education in Radiologic Technology.
1974-	Founding Member, Andrews, Lynch and Field Radiologists, PA.
1976-1978	Treasurer, Andrews, Lynch and Field Radiologists, PA.
1978-1979	President, Andrews, Lynch and Field Radiologists, PA.
1977 to present	Consultant in Radiology to the Maine Air National Guard 101st, USAF Clinic Bangor, Maine
1977 to present	Director of Radiology, St. Joseph Hospital, Bangor, Maine



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MEMBERSHIP AND PROFESSIONAL ORGANIZATIONS(Continued)

1977 to present	Membership of Executive Committee Medical Staff, Radiation Safety Officer, Chairman of Medical Radioisotope Committee.
1978 to present	Member Executive Committee, Northeast Medical Association
1978 to present	Affiliate Staff Mayo Regional Hospital, Dover Foxcroft, Maine
1979- to present	Introduction of Xeromammographic examination to Eastern Maine area
1979-1980	President Maine Radiological Society
1980-1981	President Northeast Medical Association
1980-1981	President Penobscot County Medical Society
1980 to present	Chairman, Maine Radiologic Society Committee on Technologists' Licensure
1981(April and May)	Delegate to People's Republic Of China, People to People International

PUBLICATIONS AND PRESENTATIONS

1967-1978	Numerous abstracts for American Journal of Roentgenology Radiation Therapy and Nuclear Medicine
	Andrews, R.P. & Bearor, R.A. Radiation Therapy of Lung Cancer, Journal of Maine Medical Association, Vol. 57, #9, Page 204-205 1967
	Andrews, R.P. et. al. Lipomatosis of the Ileo-cecal valve, Journal of Maine Medical Association 58, #9, Page 196-198, 1968.
	Andrews, R.P. and McAfee, R.E., Sternal Fractures secondary to Seat Belt Injury, Journal of Maine Medical Association, 58, #9, Pages 187-195, 1968
	Andrews, R.P. and David E. Cisternography with Chelated Ytterbium 169, Journal of Maine Medical Association, Vol. 65-Pages 313-316, 1974.
	A Rational Approach to Nuclear Energy, Bangor Daily News, 28 September 1982.

PRESENTATIONS:

Multiple lectures and presentations in physics of Radiation Therapy and Protection, EMVTI, School of Medical Radiography.

ANDREWS, LYNCH & FIELD, RADIOLOGISTS, P.A.

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Michael S. Panco, M.D.  
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PRESENTATIONS: (Continued)

Xeromammography, multiple presentations, Bangor, Waterville,  
Dover-Foxcroft, Perking, China, April 1981

Seminar in Cancer Treatment, 3 October 1975 Radiotherapy  
and Malignant Tumors

EMMC-Seminar-Radiologic Procedures in patients with cardiopulmonary  
problems, 1978.

In-Service education St. Joseph Hospital, Department of Radiology  
Regular participant.

EMMC seminars, Xeromammography and early detection of Breast Cancer,  
1980.

Western and Traditional Medicine in China, numerous slide  
presentations 1981, 1982.

Xeromammography, multiple presentations at EMMC and St. Joseph  
Hospital, Medical Service, Family Practice Service, and other  
forums.

COMMUNITY

1963 to present	Received Public Recognition for donation of 48 pints of blood to date.
1968 to present	Member Newburgh Volunteer Fire Department,
1971-to 1972	President Newburgh Volunteer Fire Department
1969 to 1971	Chairman Professional Group United Fund, Achieved 100% physician participation for two years.
1971 to present	Member Board of Incorporators EMMC, Bangor, Maine
1972 to 1978	Member Board of Director, Bangor Symphony Orchestra
1976 to present	Member Sugarloaf Regional Ski Education Foundation,
1981-1982	President Sugarloaf Regional Ski Education Foundation
1975-1978	Member and Chairman Newburgh Planning Board
1979-to present	Member Health Advisory Committee for Senator William Cohen

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Michael S. Panceo, M.D.  
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## CONTINUING MEDICAL EDUCATION: PARTIAL LIST

1964-1973	Numerous national and regional meetings with more than 50 category I credits awarded by the AMA annually.	
		CATEGORY I
DATE	EXPERIENCE	
1973	Radiologic Society of North America	40 hours
1974	Seminars in Neuroradiology-CT Scanning, Ultrasound and Radiation Oncology	126.4 hours
1975	Northeast Medical Association(NEMA), Armed Forces Institute of Pathology, ACR Symposium and Genitourinary Radiology	50 hours
1976	Post Graduate Course in Sonic Medicine at Bowman Gray, NEMA, McGill Seminar in Ultrasound, RSNA	85 hours
1977	CT Seminar University of California, San Francisco, NCR Symposium on Skeletal Trauma, NEMA, Practical Reviews Vol. II and III.	78 hours
1978	NEMA, Sports Medicine Seminar, Post Graduate Radiology, University of California, San Diego, RSNA.	57.3 hours
1979	NEMA, Xeroradiography Seminar, RSNA	80.5 hours
1980	Ultrasound Seminar at Tufts, Northeast Medical Association, Fall Radiology Conference at Louisiana State University, Ultrasound Seminar at Thomas Jefferson University School of Medicine Philadelphia.	83.5 hours
1981	Eastern Maine Medical Center, AIUM, NEMA, People to People Delegation to China, UNO PL159 Biomedical Ethics	122 hours
1982	Digital Angiography Seminar, NEMA.	
	November 1982-Symposium on Breast Disease -Bowman Gray School of Medicine December 1982-CT Seminar New York City New York University	46 hours. 30.5 hours
1983	Digital Radiography Symposium, University of South Florida	32 hours
1983	Northeast Medical Association Annual Meeting	10 hours

ANDREWS, LYNCH & FIELD, RADIOLOGISTS, P.A.

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REFERENCES

John F. Gibbons, M.D. Department of Radiology, Maine Medical Center, 22 Bramhall Street,  
Portland, Maine 04102

John M. Long, M.D. Department of Radiology, Eastern Maine Medical Center, 489 State Street,  
Bangor, Maine 04401

Philip G. Hunter, M.D. Wing Park, 412 State Street, Bangor, Maine 04401

Stephanie M. Caron-EMVTI, Hogan Road, Bangor, Maine 04401

James R. Shedno, Associate Director, St. Joseph Hospital, 297 Center Street, Bangor, Maine 04401

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REPLY TO

Mayo Regional Hospital  
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207-947-0554

January 31, 1984

Maine Medical Association  
524 Western Avenue  
Augusta,  
Maine 04330

Dear Sirs:

Please accept the following information in regards to my continuing medical educational credits for 1982 and 1983.

25-29 January 1982-Digital Angiography Seminar, University of South Florida  
Hollywood, Florida, 36 hours.

1 March to 5 March 1982-Northeast Medical Association, Annual meeting, 13 hours.

29 November to 3 December 1982-First Annual Symposium on Breast Disease  
Bowman Gray School of Medicine, Winston-Salem, North Carolina, 46 hours.

13-17 December, 1982-Seminar on Computed Tomography, New York University,  
New York City, 30.5 hours.

1983

24-28 January 1983-Digital Radiography Symposium, University of South Florida  
32 hours.

28 February to 4 March 1983-Northeast Medical Association, Annual meeting, 10 hours

January to December, 1983-Radiology Service, Category I credits-Eastern Maine  
Medical Center- 13 hours.

22-23 April 1983-American College of Radiology Symposium on Breast Diagnostic  
Techniques-Cornell University, New York City, 8 hours.

14 to 18 November 1983-Radiologic Society of North America, Chicago, Illinois, 24 hours

All of the above credit hours were of category I quality. Please let me know if you  
need further information.

Thank you for your consideration.

*Robert P. Andrews*  
R.P. Andrews, MD.

RPA/lc





# 1983 CERTIFICATE OF CREDIT

RSNA 69th. Scientific Assembly & Annual Meeting

ANDREWS M. D., ROBERT P.  
297 CENTER ST.  
BANGOR ME 04401

DATE: 1/23/84  
BADGE NO.: 247751 AA  
CERTIFICATE NO.: 229242

As an organization accredited by the Accreditation Council for Continuing Medical Education, the Radiological Society of North America designates that the continuing medical education activities identified as Category I meet the criteria for Category I Credit, on an hour-for-hour basis. This confirms that the individual designated attended the Scientific Assembly and Annual Meeting of the RSNA, and participated in those activities.

This report is the computer accumulation of credit vouchers submitted at the Annual Meeting, and is provided to the Radiologist, Physicist or Technologist as a help in record keeping. It may not reflect the total credits earned if credit vouchers have not been appropriately used. If that is the case, it is the responsibility of the individual to correct his own records in accordance with the honor system which is customarily observed in reporting continuing medical education credits. This record of credit is available only to the designated individual and will not be supplied to accrediting agencies and other organizations. The individual is charged with the responsibility of maintaining his own record of accumulated credits; no cumulative records are maintained by the RSNA.

*Robert Heitzman*  
E. Robert Heitzman, M.D.

EVENT CODE	DESCRIPTION	CREDITS
2RC204	204... Arthritides of the Appendicular Skeleton	1.50
2RC215	215... Principles & Clinical Application of NMR	.00 *
2RC304	304... Musculoskeletal CT and NMR with Emphasis on the Lumbar Spine	1.50
2RC404	404... Arthropathies, Radiologic Pathologic Correlations	1.50
2RC409	409... Roundtable Practicum: Techniques in Needle Aspiration of Abdominal Tumors & Fluid Collections	.00 *
2RC410	410... Ultrasound of Renal, Adrenal and Retroperitoneal Abnormalities	.00 *
2RC412	412... CT of the Spine: Cervical and Thoracic, CT of the Spine: Lumbar	.00 *
2RC608	608... Pitfalls in the Radiographic Diagnosis of Acute Cervical Spine Trauma	1.50
2RC609	609... Radiology of the Colon	.00 *
2RC611	611... Bone Scintigraphy in Benign and Malignant Disease	.00 *
2RC709	709... The Esophagus (And Don't Forget It!)	1.50
2RC715	715... Noninvasive Arterial Imaging: Carotid and Peripheral Vascular	.00 *
2RC716	716... Basic Physics and Imaging Characteristics of X-Ray Tube Focal Spots	.00 *
2RC811	811... Nuclear Cardiology	1.50
2SSC12	Scientific Session-ULTRASOUND	1.50
	FILM INTERPRETATION (Sun. 11/13)	1.50
2SSE08	Scientific Session-GU	1.50

(CONTINUED)



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*Robert Heitzman*

E. Robert Heitzman, M.D.

EVENT CODE	DESCRIPTION	CREDITS
2SSE11	Scientific Session-NMR	.00 *
2SSE12	Scientific Session-ULTRASOUND	.00 *
2SSE13	Scientific Session-NUCLEAR MEDICINE	.00 *
2SSF06	Scientific Session-GU	1.50
2SSF07	Scientific Session-CHEST	.00 *
	NEW HORIZONS LECTURE (Mon. 11/14)	1.00
2SSH03	Scientific Session-PHYSICS	1.50
2SSH11	Scientific Session-NMR	.00 *
2SSL06	Scientific Session-BONE	1.50
2SSL10	Scientific Session-NEURORADIOLOGY	.00 *
2SSL11	Scientific Session-NMR	.00 *
2SSL14	Scientific Session-CARDIOVASCULAR	.00 *
	ERSKINE LECTURE (Wed. 11/16)	1.50
2SSS05	Scientific Session-CHEST	1.50
2SSS06	Scientific Session-BONE	.00 *
2SSS07	Scientific Session-GI	.00 *
2SSS11	Scientific Session-NMR	.00 *
	NMR Seminar I (Thu. 11/17)	2.00

TOTAL CREDITS: 24.00

CREDIT HAS ALREADY BEEN ISSUED FOR THIS TIME SEGMENT \*



## Physician's Recognition Award

ROBERT PATTERSON ANDREWS MD

has fulfilled the requirements for the  
Physician's Recognition Award  
in Continuing Medical Education

Valid until FEBRUARY 1, 1987

*Frank J. Jirka MD*  
President

*James H. Hamm MD*  
Executive Vice President



THIS WEEK AT THE MASSACHUSETTS GENERAL HOSPITAL

DATE OF LECTURE:

14-17 MAY 1984

Credits (✓) 32  
No Credits ( )

SERVICE/DEPARTMENT

NUCLEAR CARDIOLOGY +  
CAROTID ULTRASOUND

TELEPHONE NO.

TITLE OR SUBJECT:

FELLOWSHIP IN NUCLEAR CARDIOLOGY  
AND CAROTID ULTRASOUND

SPEAKERS:

DRS ACKERMAN, AND STRAUSS

Name (First, Middle Initial & Last), M.D./Ph.D. (Type or print)

ROBERT P. ANDREWS, M.D.  
297 CENTER STREET  
BANGOR, MAINE 04401

Service/Department & Identifying Information and LOCATION

TIME:

PLACE:

DEPTS OF Nuc MEDICINE AND ULTRASOUND

NOTE:

Please asterisk (\*) any conference/lecture etc. submitted for inclusion in This Week at the Massachusetts General Hospital if it is APPROVED FOR CONTINUING MEDICAL EDUCATION CREDITS.

Please return material to the Research Office, Bartlett Hall 3rd floor NO LATER than TUESDAY of the week BEFORE the lecture date.

Material for posting may be left (to my attention) at the White Information Desk on Tuesday by office closing time if you feel it may not reach the Research Office in time via house mail.

Mrs. Diamond  
Tel: 726-3651

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