

NRC FORM 313M

(9-81)

10 CFR 35

U.S. NUCLEAR REGULATORY COMMISSION

## APPLICATION FOR MATERIALS LICENSE - MEDICAL

Approved by OMB

3150-0041

Expires 9-30-83

**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

K.OCASIO CABANAS, M.D.  
Ashford Medical Center  
Suite 508  
Santurce, P.R. 00907

TELEPHONE NO.: AREA CODE 809 723- 4707

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

Ashford Medical Center  
Suite 508  
Santurce, P.R. 00907

2. PERSON TO CONTACT REGARDING THIS APPLICATION

K.Ocasio Cabanas, M.D. 723-2781

TELEPHONE NO.: AREA CODE 809 723- 4707

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

a. ☒ NEW LICENSE

b. ☐ AMENDMENT TO LICENSE NO. \_\_\_\_\_

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

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

K.OCASIO CABANAS, 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.)

K.Ocasio Cabanas, M.D.  
Santiago Gómez Figueroa,  
Radiation Physics Consultant

## 6.a. RADIOACTIVE MATERIAL FOR MEDICAL USE

RADIOACTIVE MATERIAL LISTED IN:	ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)	ADDITIONAL ITEMS:	MARK ITEMS DESIRED "X"	MAXIMUM POSSESSION LIMITS (In millicuries)
10 CFR 31.11 FOR IN VITRO STUDIES			IODINE-131 AS IODIDE FOR TREATMENT OF HYPERTHYROIDISM		
10 CFR 35.100, SCHEDULE A, GROUP I		AS NEEDED	PHOSPHORUS-32 AS SOLUBLE PHOSPHATE FOR TREATMENT OF POLYCYTHEMIA VERA, LEUKEMIA AND BONE METASTASES		
10 CFR 35.100, SCHEDULE A, GROUP II		AS NEEDED	PHOSPHORUS-32 AS COLLOIDAL CHROMIC PHOSPHATE FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP III			GOLD-198 AS COLLOID FOR INTRACAVITARY TREATMENT OF MALIGNANT EFFUSIONS.		
10 CFR 35.100, SCHEDULE A, GROUP IV		AS NEEDED	IODINE-131 AS IODIDE FOR TREATMENT OF THYROID CARCINOMA		
10 CFR 35.100, SCHEDULE A, GROUP V		AS NEEDED	XENON-133 AS GAS OR GAS IN SALINE FOR BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES.		
10 CFR 35.100, SCHEDULE A, GROUP VI	X	125			

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 MILLCURIES OF EACH FORM	DESCRIBE PURPOSE OF USE
Sr-90/Y-90	Sealed Source New England Nuclear - Model NB-1 Eye Therapy Source	100	Human use: Treatment of superficial eye conditions.

8509260232 850807  
REG2 LIC30  
52-23088-01 PDR

License Fee Information  
on Next Page

50634

# 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: \_\_\_\_\_

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

## 24. PERSONNEL MONITORING DEVICES

TYPE (Check appropriate box)		SUPPLIER	EXCHANGE FREQUENCY
a. WHOLE BODY	<input checked="" type="checkbox"/> FILM	R.C.Landauer Jr. (Note)	Monthly
	<input type="checkbox"/> TLD		
	<input type="checkbox"/> OTHER (Specify)		
b. FINGER	<input type="checkbox"/> FILM		
	<input type="checkbox"/> TLD		
	<input type="checkbox"/> OTHER (Specify)		
c. WRIST	<input type="checkbox"/> FILM		
	<input type="checkbox"/> TLD		
	<input type="checkbox"/> OTHER (Specify)		

d. OTHER (Specify)

**Note:** My name will be in the list of participants of the Film Badge Services of Ashford Community Hospital - Nuclear Medicine Laboratory - NRC Lic. No.52-11810-02

*June 2 - II*

Applicant	
Check No.	385
Amount, Fee Category	\$580.7C
Type of Fee	Application
Date Check Rec'd	7/1/85
Received By	Jacques

## 25. FOR PRIVATE PRACTICE APPLICANTS ONLY

a. HOSPITAL AGREEING TO ACCEPT PATIENTS CONTAINING RADIOACTIVE MATERIAL		b. ATTACH A COPY OF THE AGREEMENT LETTER SIGNED BY THE HOSPITAL ADMINISTRATOR.	
NAME OF HOSPITAL N/A		c. WHEN REQUESTING THERAPY PROCEDURES, ATTACH A COPY OF RADIATION SAFETY PRECAUTIONS TO BE TAKEN AND LIST AVAILABLE RADIATION DETECTION INSTRUMENTS.	
MAILING ADDRESS			
CITY	STATE ZIP CODE		

## 26. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 1a certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 35, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

a. LICENSE FEE REQUIRED (See Section 170.31, 10 CFR 170)	b. APPLICANT OR CERTIFYING OFFICIAL (Signature) <i>K. Ocasio Cabanas M.D.</i>
	(1) NAME (Type of Print) K.OCASIO CABANAS,M.D.
(1) LICENSE FEE CATEGORY: 7C	(2) TITLE Ophthalmologist
(2) LICENSE FEE ENCLOSED: \$ 580.00	c. DATE

## PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission on NRC Form 313M. This information is maintained in a system of records designated as NRC-3 and described at 40 Federal Register 45334 (October 1, 1975).

1. **AUTHORITY** Sections 81 and 161(b) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2111 and 2201(b)).
2. **PRINCIPAL PURPOSE(S)** The information is evaluated by the NRC staff pursuant to the criteria set forth in 10 CFR Parts 30-36 to determine whether the application meets the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations, for the issuance of a radioactive material license or amendment thereof.
3. **ROUTINE USES** The information may be used: (a) to provide records to State health departments for their information and use; and (b) to provide information to Federal, State, and local health officials and other persons in the event of incident or exposure, for their information, investigation, and protection of the public health and safety. The information may also be disclosed to appropriate Federal, State, and local agencies in the event that the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding. In addition, this information may be transferred to an appropriate Federal, State, or local agency to the extent relevant and necessary for a NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you. A copy of the license issued will routinely be placed in the NRC's Public Document Room, 1717 H Street, N.W., Washington, D.C.
4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION** Disclosure of the requested information is voluntary. If the requested information is not furnished, however, the application for radioactive material license, or amendment thereof, will not be processed.
5. **SYSTEM MANAGER(S) AND ADDRESS** Director, Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

TRAINING AND EXPERIENCE  
AUTHORIZED USER OR RADIATION SAFETY OFFICER

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER  K. OCASIO CABANAS, M.D.		2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE  P.R.		
3. CERTIFICATION				
SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C		
Diplomate American Board Ophthalmology		October, 1958		
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	UPR-School of Medicine Ophthalmology Department San Juan, P.R. August 8, 1981 - Feb. 11, 1982	8	3	
b. RADIATION PROTECTION	Same as above	10	2	
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	Same as above	5	-	
d. RADIATION BIOLOGY	Same as above	10	2	
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
Sr-90	50 mCi	P.R. Medical Center	1980 - 1984	Therapy



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

RADIATION PHYSICS CONSULTANT

1. NAME OF AUTHORIZED USER OR RADIATION SAFETY OFFICER SANTIAGO GOMEZ FIGUEROA (see Resume)	2. STATE OR TERRITORY IN WHICH LICENSED TO PRACTICE MEDICINE
--	--

**3. CERTIFICATION**

SPECIALTY BOARD A	CATEGORY B	MONTH AND YEAR CERTIFIED C
	N/A	

**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	Puerto Rico Nuclear Center (PRNC) and University of P.R. (UPR)-School of Medicine, S.J. PR. 1972	200	150
b. RADIATION PROTECTION	PRNC and UPR-School of Medicine 1972 - 73	200	150
c. MATHEMATICS PERTAINING TO THE USE AND MEASUREMENT OF RADIOACTIVITY	PRNC and UPR-School of Medicine 1972 - 73	200	150
d. RADIATION BIOLOGY	PRNC and UPR-School of Medicine 1973	150	100
e. RADIOPHARMACEUTICAL CHEMISTRY	PRNC and UPR-School of Medicine 1973	50	50

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

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
Co-60	4000 Ci	PRNC and UPR-Medical Sciences Campus (MSC) San Juan, P.R.	8 years	Res. Irradiator
Cs-137	0.8 Ci	PRNC and MSC	10 years	Therapy Sealed Sources
Co-60	5000 Ci	PRNC & Univ. Dist. Hosp. V.A. Hospital, San Juan, PR.	10 years 3 years	Therapy Units Therapy Units
H-3	2300 Ci	TII Ind. Inc. - Toa Alta, PR.	6 years	Electronic Tubes

Production.

Cont... #5 EXPERIENCE WITH RADIATION

Short-lived radionuclides	PRNC-MSC, V.A. Hospital and Private Nuc.Med.Lab., S.J.	10 years	Diagnostic
I-131 100 mCi/treatment	University District Hospital	10 years	Therapy
Sr-90 100 mCi/Applicat.	Ophthalmologists Private Offices	8 years	Therapy

CURRICULUM VITAE (RESUME)

Name:

SANTIAGO GOMEZ

Residence and Mailing Address:

1821 Colonia St.  
College Park  
Río Piedras, Puerto Rico (00921)  
Phone (809) 751-0042

Business Address:

UPR- Medical Sciences Campus  
Health Physics Office  
Bio-Medical Building (R-180)  
Caparra Heights Station  
San Juan, Puerto Rico (00935)  
  
Phone (809) 767-0396

Marital Status:

Married, 2 children

Education:

Universidad Nacional and Instituto de la Salle  
Bogotá, Colombia - 1954-1958 (Sciences)  
B.S.  
  
Cath. University of America - Washington-  
1960-62 (Physics) - M.S.

Specialization:

- University of Puerto Rico  
(Medical Sciences Campus) - San Juan  
1972 - 1973 ( Radiological Health) M.S.

Content of the courses:

- a) Principles of Radiation Physics and Radiation Detection.
  - b) Principles and practices of radiation protection.
  - c) Radioactivity measurement standarization and monitoring techniques and instruments.
  - d) Mathematics and calculations basic to the use and measurement of radioactivity.
  - e) Biological effects of radiation.
- MIT - Boston, Massachusetts - August 1983 Summer Course on:  
"Non-Ionizing Radiations: Biophysical and Biological Applications and Hazards in Medicine and Industry ".



Positions Held:

- Professor of physics at the School of Engineering - Univ. Industrial de Santander - Bucaramanga-Colombia 1963-1971
- Teacher and coordinator of courses on applied radiation physics at the school of Medicine - Univ. Industrial de Santander - Bucaramanga - Colombia 1973-1974
- Professor of Radiation Detection and Radiological Health courses at the School of Medicine U.P.R., San Juan, P.R. 1974-1975
- Head of the Health and Safety Division, Río Piedras Operations, Center for Energy and Environment Research 1974-1978
- Radiation Protection Officer  
UPR- Medical Sciences Campus  
NRC Broad Scope Licensee  
San Juan, Puerto Rico  
1978 - up to date
- Radiation Physics Consultant  
TII Industries Inc., Toa Alta, P.R.  
(multicuries use of H-3 for electronic tubes production)  
1975- up to date (part-time)

Experience with Radiation:

- Research on plantains and mangoes preservation by gamma radiation -PRNC 1972
- Isodose curves mapping on a phantom exposed to a Co-60 radiation field using TLD microrods PRNC - 1973
- The solution of a Dosimetry Problem caused by a Mercury Shutter.  
Published in Phy. Med. and Biol., 1976
- Radiation dose to personnel during routine Nuclear Medicine Analysis  
PRNC - 1976
- Tutoring undergraduate students users of a Co-60 Irradiator (approx. 2000 Ci)  
PRNC- 1975, up to date.

- Radiological Health Services provided to UPR-Medical Sciences Campus, TII Industries Inc., three Nuclear Medicine laboratories and six private Industrial and Medical Laboratories, including:
  - a) Urine Analysis for H-3
  - b) Smears and surveys
  - c) Leak test to Co-60 Teletherapy Units (5000 Ci), Cs-137 needles and tubes (350 mCi), Sr-90 Eye Applicators (100 mCi), Ir-192 (Seeds) 100 mCi, Ni-63 Sealed Sources (15 mCi)
  - d) Indoctrination on Radiation Protection to new personnel
  - e) Radiation detection instruments calibration
  - f) Radwaste collection and disposal
  - g) Consultant Services on NRC License Applications.

Membership Professional

Societies:

Asociación Colombiana para el Avance de la Ciencia.

Health Physics Society, Puerto Rico Chapter

Sociedad de Medicina Nuclear de Puerto Rico

Health Physics Society, plenary Member  
American Association of Physics Teachers.

Additional Qualifications:

- a) Fellowships: UNESCO - Amsterdam 1965-1966  
National Sciences Foundation - Rutgers University - Summer 1962  
OAS - San Juan, Puerto Rico 1972-1973  
National Safety Council - Philadelphia 1975
- b) Achievement: ERDA Safety Award to PRNC 1975, 1976, 1977, 1978
- c) NRC License No. 52-17420-01 for Leak Testing of Sealed Sources
- d) Comprehensive Organization of the UPR- Medical Sciences Campus Radiation Protection Program including elaboration of the Broad Scope, Teletherapy Unit and Gamma Irradiator NRC License Applications.

April 18, 1985

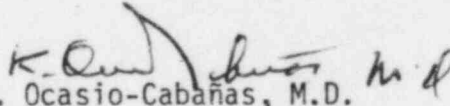
A. A. Cintron-Rivera, M.D.  
Director  
Ashford Nuclear Center, Inc.  
G. P. O. Box 64  
San Juan, P.R. 00936

Dear Dr. Cintron-Rivera:

I am in the process of applying for a NRC License to possess and handle a Strontium-90 Beta Eye Applicator for human use. As part of the Radiation Protection program it is wise to wear a personnel monitoring device when the Sr-90 sealed source is being used.

So I kindly request your authorization to include my name in the list of the Film Badge (F.B.) services participants of your Laboratory. Due to the fact that the Nuclear Medicine Laboratory and my office belong to the same Ashford Medical Complex I hope this way to receive a more functional and practical F.B. service instead of processing a new personnel monitoring order just for myself.

Hope to hear from you soon, I remain cordially yours

  
K. Ocasio-Cabañas, M.D.



# ASHFORD NUCLEAR CENTER

ASHFORD MEMORIAL COMMUNITY HOSPITAL  
PRIMER PISO  
ASHFORD AVE., CONDADO, PUERTO RICO 00907

P. O. BOX "P" CAROLINA, P. R. 00630  
TELS. (809) 725-0485  
(809) 721-2160 EXT. 281 - 282

April 29, 1985

Kermell Ocasio-Cabañas, M.D.  
Ashford Medical Center  
Ashford Avenue  
Santurce, P.R. 00907

Dear Dr. Ocasio-Cabañas:

In reply to your letter dated April 18, 1985, I do not have any objection to have your name included in the list of our Film Badge Services participants.

Once you start dealing with radiation, please contact the Nuclear Medicine Laboratory supervisor (Phone 725-0485) and provide him all the personal data information required to include your name as participant of the R.S. Landauer Jr. & Co., account number 32300.

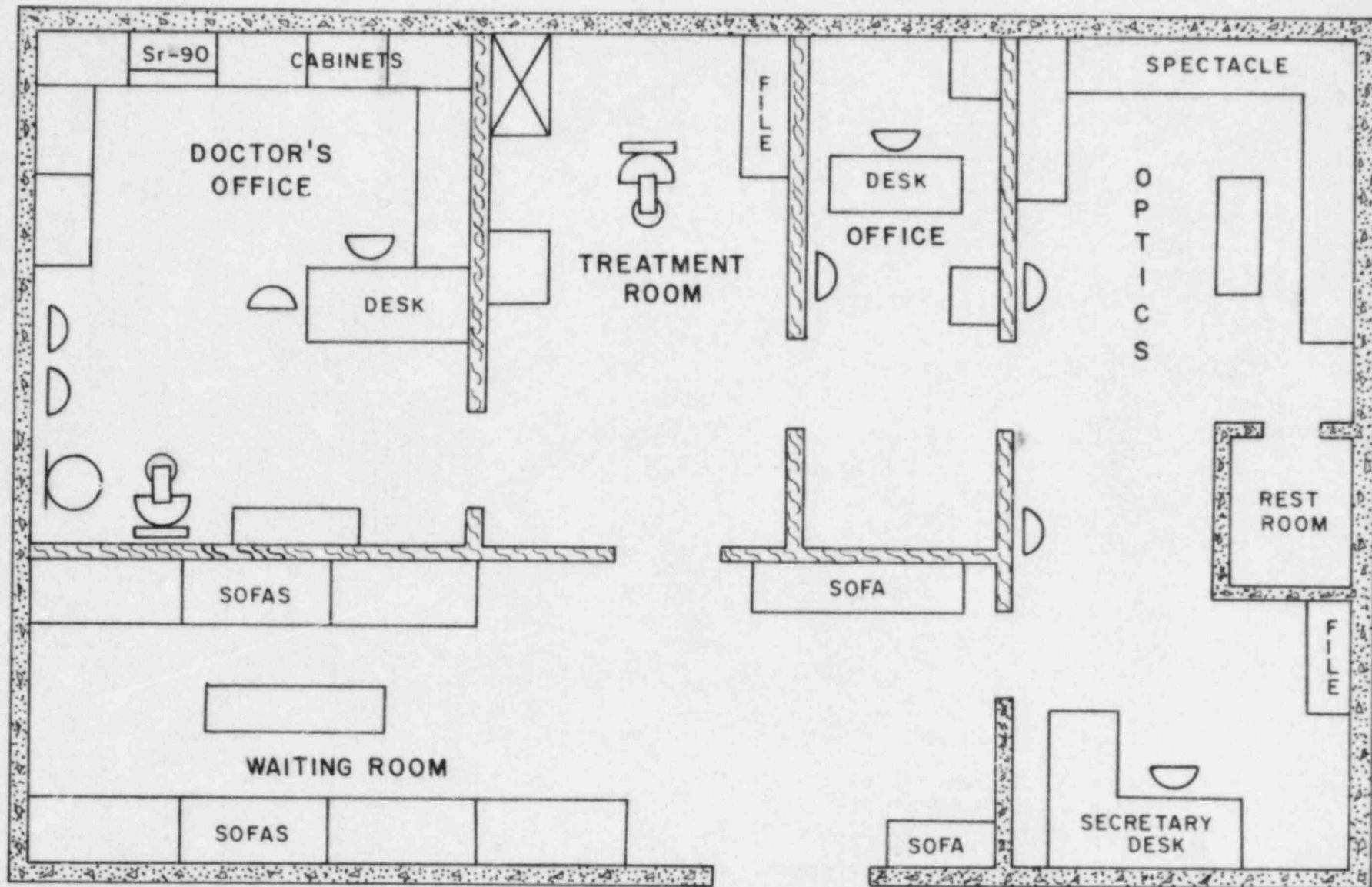
Looking forward to serving you in the future, I remain

Sincerely yours,

*A. A. Cintron Rivera*  
A. A. Cintron Rivera, M.D.

AACR/pr

DR. K. OCASIO CABANAS OFFICE  
LAYOUT DIAGRAM





**NEN** New England Nuclear

Model NB-1 Eye Therapy Source

# Ophthalmic Beta Radiation Applicator



New England Nuclear's NB-1 Eye Therapy Source is designed for use in the treatment of superficial eye conditions that respond to beta radiation. Conditions which may respond well include vernal conjunctivitis, corneal vascularization, and keratitis. This source also offers a convenient means of treatment of lesions such as pterygia and papillomas.

## DESCRIPTION

Strontium-90 and yttrium-90 in secular equilibrium are uniformly dispersed in an inert matrix which, in turn, is encapsulated in stainless steel with a welded closure. The source has an active diameter of approximately 8.7mm, with an overall diameter of 10.3mm, and is mounted with a swivel joint at the end of a 16cm handle.

Uniformity of the radionuclide deposit is demonstrated by autoradiography. The source contains 100mCi of  $^{90}\text{Sr}$ , and delivers approximately 60 rads per second. Each unit is supplied with calibration data traceable to the National Bureau of Standards.

## ACCESSORIES FURNISHED WITH THE SOURCE

To protect the therapist's hand during use, each source is fitted with a 5mm thick lucite beta backscatter shield that slides along the handle.

Four Castroviejo collimating masks—designed to confine beta radiation to the selected area of the eye and to protect surrounding tissue. The masks accomplish confinement by permitting 100% transmission through the aperture, and restricting radiation to surrounding tissue. Two masks permit irradiation of circular areas, and two irradiate limbus-shaped areas.

Forceps are provided for ease in affixing and detaching the collimators.

## REGISTERED SOURCE SIMPLIFIES LICENSING PROCEDURE

Specific USNRC or Agreement State license authorization is required for possession of this medical device. This unit is registered, however, with the USNRC and, through reciprocity laws, with Agreement States. Because complete manufacturing information is on file under NEN's model number NB-1, those making application for a license need only specify this model number.

## ORDERING INFORMATION

**MODEL NO. NB-1 Eye Therapy Source**  
100mCi  $^{90}\text{Sr}/^{90}\text{Y}$

Approximate dose rate 60 rad/sec, surface contact dose. Supplied with lucite beta shield, four Castroviejo collimating masks, forceps, detailed instruction manual.

Catalog No. NER-8090

*For convenient storage, each source is furnished in a wooden case fitted with stainless steel and tungsten shielding*

New England Nuclear is the world's leading manufacturer of radioactive materials for research and a principal supplier of radio-pharmaceuticals. You can rely on NEN quality—there is no competitive equal.

*For further information call or write NEN Technical Services Department.*

## LIMITED WARRANTY

New England Nuclear (NEN) warrants that, at the time of shipment, the products sold by it are free from defects in material and workmanship and conform to specifications which accompany the product. NEN makes no other warranty, express or implied, with respect to the products, including any warranty of merchantability or fitness for any particular purpose. Because of the inherent susceptibility to deterioration of radioactive products, notification of any breach of warranty must be made within 60 days of receipt or within the half-life of the radioisotope contained in the product, whichever period is shorter, unless otherwise provided in writing by NEN. No claim shall be honored if the customer fails to so notify NEN within the period specified. The sole and exclusive remedy of the customer for any liability of NEN of any kind including liability based upon warranty (express or implied, whether contained herein or elsewhere), strict liability, contract or otherwise is limited to the replacement of the goods or the refund of the invoice price of the goods. NEN shall not in any case be liable for special, incidental or consequential damages of any kind.



**New England Nuclear**

## Europe

NEN Chemicals GmbH  
D-6072 Dreieich, W. Germany  
Postfach 401240. Tel: (06103) 85034  
Order Entry: (06103) 81011  
Telex: 4-17993 NEN D

601 Treble Cove Rd., North Billerica, MA 01862

CALL TOLL-FREE: 800-225-1572 Telex: 94-0996  
(In Massachusetts and International: 617-667-9531)

## Canada

NEN Canada  
2453 46th Avenue  
Lachine, Que. H8T 3C9  
Tel: 514-636-4971  
Telex: 05-821808



ANNEX I  
(Items 9 and 10)

Accessibility to a G.M. Survey Meter  
and Calibration Procedures.

In case of emergency, during leak testing procedures, receiving the Applicator from the manufacturer, packing and delivery of the Applicator for repair or maintenance services or in any other case requiring radiation levels determination, arrangements have been made with the Radiation Physics Consultant to ensure access to a recently calibrated G.M. Survey Meter. Besides that I want him to perform routine radiation surveys around the storage location of the source at the time of performing the bi-annual leak test.

Calibration of the radiation survey meter will be performed according to the procedures adopted by the University of Puerto Rico - Medical Sciences Campus - NRC Lic.No.52-01946-07

ANNEX II (Item 11)

The Layout Diagram of the Office facilities describes the location where the source will be stored.

For security purposes, the Sr-90 Ophthalmic Applicator will be stored in a keyed cabinet.

Keys will be kept on hand by Dr. K. Ocasio Cabanas at his desk in the Office.

(Please see enclosed Layout Diagram)

ANNEX III (Items 12,16,18,20 and 23)

RADIATION PROTECTION PROGRAM

- I. Personnel Training
- II. Rules for safely handling a Sr-90 Eye Applicator
- III. Wipe Test
- IV. Waste Disposal

## I. PERSONNEL TRAINING.

The Beta Eye Applicator can only be handled by the authorized user when treatments are performed or by the radiation physics consultant when leak testing procedures are being made. (Please see Item 8 for training and experience with radiation of the authorized user and the radiation physics consultant).

During treatments, paramedical personnel stay away from the source in such a manner that the total dose received by any one of those employees shall not exceed the maximum permissible dose for the general public.

## II. RULES FOR SAFELY HANDLING A SR - 90 EYE APPLICATOR.

(Ref: Enclosure 2 - Information to be submitted when requesting possession and use of Sr-90 as Ophthalmic Applicator)

1. Wear your personnel dosimeter (s) if available, whenever you handle the Sr-90 Eye Applicator.
2. Remove the Sr-90 Eye Applicator from its secured storage location just before use. Do not leave it out any longer than necessary.
3. After removing the Applicator from its storage location,
  - a. Do not touch the treatment end of the applicator with your hands or other portion of your body.
  - b. Always hold the applicator by its handle.
  - c. Except during patient treatment, do not point the treatment end of the applicator toward another person, especially toward the eyes.
4. When the applicator is to be sterilized, place on a flat surface, use a cotton swab, sponge or gauze dampened with a sterilizing agent, then wipe the treatment end or the applicator across the swab, sponge or gauze. Do not sterilize by holding the swab or gauze in your hand.
5. During treatment, hold the patient's eye lids open with tape or other device, not with your fingers.
6. Immediately after treatment and/or resterilization, return the Sr-90 Eye Applicator to its storage container and to its secured location, i.e. keyed cabinet.

7. Do not remove any metal or plastic inserts from the manufacturer-supplied storage container. These items are generally a part of the container's shielding. Removal of these items can lead to excessive and unnecessary radiation exposures.
8. In event of apparent or probable damage to the source it shall immediately be placed into the storage container. The storage container shall be wrapped or placed into a plastic bag and secured. The cognizant radiation protection officer, regulatory agency, or the radiation physics consultant shall be contacted immediately for consultation and action.
9. In order to ensure that radiation exposures will be as low as reasonably achievable (ALARA), in the use and handling of the Sr-90 sealed source, the authorized user, K. Ocasio Cabanas, M.D., enforces the following actions:
  - a. As soon as new staff members (e.g., physicians or other individuals who assist with patient treatments) report for duty and at least annually thereafter, it will be organized a refresher training in the rules for safe handling of the Sr-90 eye applicator and in the items specified in 10 CFR 19.12
  - b. At least once each year, both the authorized user and the radiation physics consultant will review the results of personnel monitoring if available, consider ways of reducing radiation exposures and implement needed changes in procedures, equipment, etc.

### III. WIPE TESTS.

Perform routine wipe test at 6 - month intervals and maintain records. The source shall be withdrawn from service if leak test results indicate any increase in detectable activity from that of previous leak test. Removable contamination activity should be much less than 0.005 uCi.

Leak test shall be performed by persons specifically authorized by the Commission or an Agreement State to perform such services.

### IV. WASTE DISPOSAL.

It is not foreseen any waste disposal in the proposed use and handling of the Sr-90 sealed source Eye Applicator. In the event of a serious damage to the applicator, the final disposal will be performed by the manufacturer, i.e. New England Nuclear Inc. or any other licensee specifically approved to handle and/or dispose this source.