

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

FEDERAL AGENCIES FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND,
MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA,
RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIAL SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA,
PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR
WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
MATERIAL RADIATION PROTECTION SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR
WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA,
NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH,
OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON,
AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS
TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
MATERIAL RADIATION PROTECTION SECTION
1450 MARA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

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

- ☐ A. NEW LICENSE
☐ B. AMENDMENT TO LICENSE NUMBER _____
☒ C. RENEWAL OF LICENSE NUMBER 52-17420-01

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip Code)

SANTIAGO GOMEZ-FIGUEROA
1821 Colonia St.
College Park - Rio Piedras, P.R. 00921

3. ADDRESSES: WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED.

Possession incident to the performance of leak tests at customer facilities and/or at temporary job sites of Licensees.

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Santiago Gomez-Figueroa

TELEPHONE NUMBER

(809) 751-0042

SUBMIT ITEMS 5 THROUGH 11 ON 8 1/2 x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time. See ATT.5

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

See ATT.6

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE

See ATT.7 and 8

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

See ATT.7 and 8

9. FACILITIES AND EQUIPMENT

See ATT.9

10. RADIATION SAFETY PROGRAM

See ATT.10 and 11

11. WASTE MANAGEMENT

See ATT.10 and 11

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY 3P AMOUNT ENCLOSED \$ 120.00

13. CERTIFICATION (Must be completed by applicant): THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 3, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN, IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1949, 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.

SIGNATURE—PERSON OFFICER

TYPED/PRINTED NAME

SANTIAGO GOMEZ-FIGUEROA

TITLE

Radiation Physics
Consultant

DATE

7/20/87

14. ANNUAL RECEIPTS

15. NUMBER OF EMPLOYEES (Total for entire facility excluding outside contractors)

16. WOULD YOU BE WILLING TO FURNISH COST INFORMATION (Dollar and/or staff hours) ON THE ECONOMIC IMPACT OF CURRENT NRC REGULATIONS OR ANY FUTURE REGULATIONS THAT MAY AFFECT YOU? (NRC regulations permit initial commercial or financial—proprietary—information furnished to NRC)

< \$250K	\$1M—3.5M
\$250K—500K	\$3.5M—7M
\$500K—750K	\$7M—10M
\$750K—1M	> \$10M

8801220231 870813
REG2 LIC30
52-17420-01 PDR

☐ YES ☒ NO

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
Ren	Aug-31	3P		J. H. Kucir
AMOUNT RECEIVED	CHECK NUMBER			DATE
\$120	205			8/6/87

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 313. 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, 32, 33, 34, 35 and 40 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 (a) provided to State health departments for their information and use; and (b) provided 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 an NRC decision or to an appropriate Federal agency to the extent relevant and necessary for that agency's decision about you.
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. A request that information be held from public inspection must be in accordance with the provisions of 10 CFR 2.790. Withholding from public inspection shall not affect the right, if any, of persons properly and directly concerned need to inspect the document.
5. **SYSTEM MANAGER(S) AND ADDRESS:** U.S. Nuclear Regulatory Commission
Director, Division of Fuel Cycle and Material Safety
Office of Nuclear Material Safety and Safeguards
Washington, D.C. 20555

A T T A C H M E N T 5

Item 5: Radioactive materials

5.1 Subitem a: Element and mass number

Any by-product material between atomic
numbers 1 and 83

5.2 Subitem b: Chemical and Physical Form

Analytical samples

5.3 Subitem c: Maximum amounts

See Attachment 6

A T T A C H M E N T 6

Item 6: Purpose for which licensed materials will be used.

Kinds of sealed sources and sources in devices to be leak tested:

- Cs-137 needles (2 or 5 mCi each) and tubes (10 or 15 mCi each)
- Co-60 needles (2 or 5 mCi each) and tubes (10 or 15 mCi each)
- Sr-90 Eye Applicators (50 mCi, 100 mCi, 125 mCi)
- Co-60 Teletherapy Units (4000 Ci, 6000 Ci)
- Co-60 Gamma Irradiators (6000 Ci, 10000 Ci)
- Cs-137 (10 mCi) / Am-241 (50 mCi) in portable moisture-density gauges.
- Ni-63 (10 mCi, 15 mCi) electron capture detectors in gas chromatographs.
- I-125 (200 mCi) or Gd-153 (1000 mCi) Bone minerals analyzers
- Cs-137 / Ba-133 / Co-57 Type E Reference Sources for constancy check of Dose Calibrators.
- Other sealed sources, beta-gamma emitters used in medical and industrial applications.

Note: Possession and use of licensed materials will be incident to performing leak tests on customer's sealed sources or sealed sources in devices.

A T T A C H M E N T 7 and 8

Item 7: Training and Experience of the responsible individual.

See up-to-date Supplement A and Resumé (Santiago Gomez-Figueroa)

Item 8: Training for individuals working in or frequenting restricted areas.

It is considered "Not Applicable" due to the fact that no ancillary personnel, secretary, janitor or technicians.....etc. are being expected to work under the supervision of the responsible individual.

TRAINING AND EXPERIENCE
AUTHORIZED USER OR RADIATION SAFETY OFFICER

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. - Toe Alta, PR.	6 years	Electronic Tube 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.	Ophtalmologists ^M Private Offices	8 years	Therapy

CURRICULUM VITAE (RESUME)

Name:

SANTIAGO GOMEZ

Residence and Mailing Address:

1821 Colonia St.
College Park
Rfo Piedras, Puerto Rico (00921)

Tel. (809) 751-0042

Business Address:

UPR-Medical Sciences Campus
Health Physics Office
Bio-Medical Building (R-180)
G.P.O.Box 5067
San Juan, Puerto Rico , 00936

Tel. (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 standardization and monitoring techniques and instruments.
- d) Mathematics and calculations basic to the use and measurement of radioactivity.
- e) Biological effects of radiation.

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 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, Rfo 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., two Nuclear Medicine laboratories and four private Industrial 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.

CRSO Conference, plenary member

Additional Qualifications

a) Fellowships: UNESCO - Amsterdam
1965 -66

National Sciences Foundation - Rutgers
University - Summer 1962

OAS - San Juan, Puerto Rico - 1972 - 73

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.

e) Summer Session 1983 on Non-ionizing
Radiations - MIT - Boston, 1983

f) Low Level Radioactive Waste Symposium
Harrisburg - Penn - 1983

g) The Incineration of Low Level Radioactive
& Mixed Wastes Conference -
Charlotte, N.C. - 1986

h) Campus Radiation Safety Officers (CRSO)
Conference - Montreal, Can. - 1987

A T T A C H M E N T 9

Item 9: Facilities and Equipment

9.1 Radiation detection and radioactivity measuring instruments.

Instruments used during leak testing procedures for radiological safety purposes, will be G.M. Survey and radioactivity measuring instruments recently calibrated and used at customer facilities.

Specifically, at the NRC Broad Scope Licensee, Lic.No.52-01946-07 - UPR-Medical Sciences Campus where my Office is located, there are the following types of instruments:

- a. 2 Victoreen G.M. survey meters - Model 491 - Beta-gamma
Sensitivity range 0.1 - 100 mR/hr, window thickness
30 mgr/cm²

2 Victoreen Cutie Pie - Model 740F - alfa-beta-gamma
sensitivity range 25-25000 mR/hr - window thickness
0.00025

Monitor 4 - Solar Electronics Inc. - Beta-gamma
Sensitivity range 0.5 - 50 mR/hr

G.M. Survey Meter - Eberline - Model E-520 - Beta-gamma
sensitivity range 0.2 - 2000 mR/hr

Scintillation Meter - Bicron - Model Analyst
Sensitivity range 500 - 500000 cpm

G.M.Survey Meter - LUDLUM Inc. - Model 14C - Beta-gamma
Sensitivity range 0.2 - 2000 mR/hr

- b. LUDLUM (Radioactivity measuring System):
- Scaler Ratemeter - Model 2500
- End-window G.M.Tube
- Scintillation Detector - Bicron - Model 2 M2/2
- Lead Pig Shielding

c. LS Counting System:

- Scint.Detector - Nuclear Enterprises Ltd.
Model LSC-2
- Scaler-Timer - Nuclear Enterprises Ltd. Model ST6

9.2 Other safety equipment and facilities.

Instruments and facilities are located at the Health Physics Office Laboratory - Biomedical Building - Medical Center San Juan, Puerto Rico.

Figure 1 shows the storage facilities for sealed sources and protective lead barrier which is used when leak tests samples are taken to Brachytherapy sealed sources and Figure 2 shows a detail of the protective arrangement mounted when calibrating radiation detection instruments.

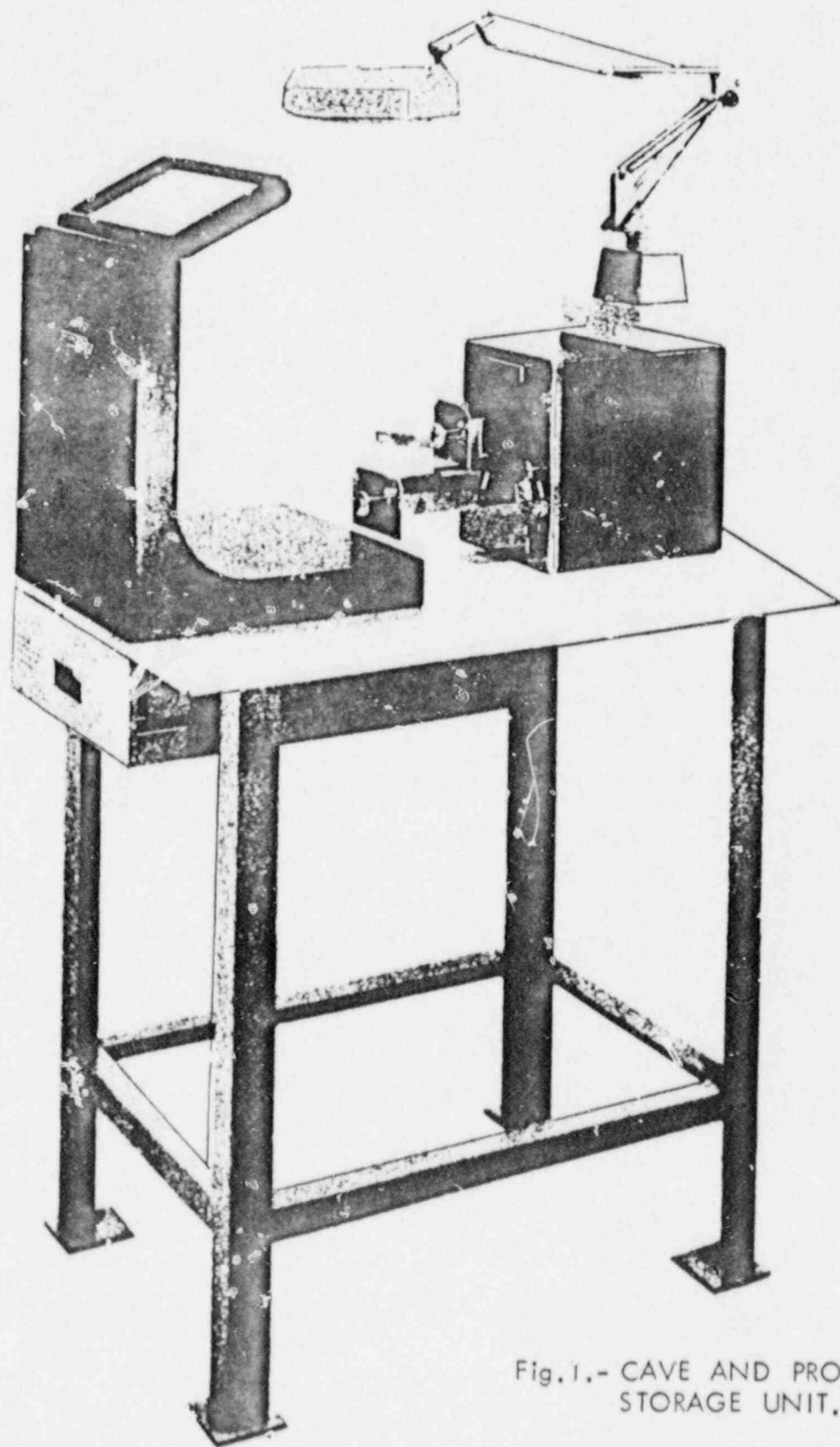


Fig. 1.- CAVE AND PROTECTIVE LEAD BARRIER
STORAGE UNIT.

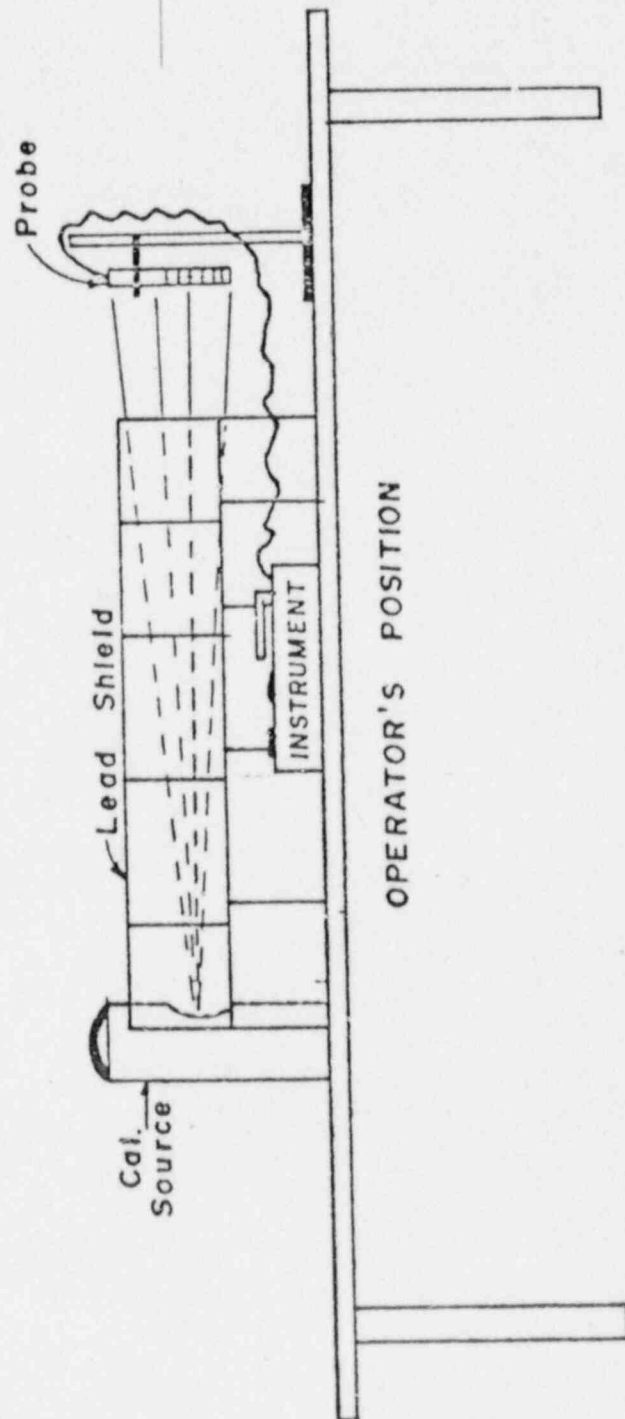


FIG. 2

A T T A C H M E N T 10 and 11

Item 10: Radiation Safety Program

Item 11: Waste Management

- 10.1 Personnel monitoring equipment
- 10.2 Calibration of Radiation Survey Instruments
 - 10.2.1 Calibration of Radioactivity measuring instruments
 - 10.2.2 Procedures for converting instrument counting results of leak test samples into microcuries.
- 10.3 Operating and Emergency procedures.
- 11.1 Waste disposal

10.1 Personnel monitoring equipment.

Type: Regular Film Badge and TLD ring badge

Exchange
frequency : Monthly

Supplier: LANDAUER Jr. or equivalent organization

10.2 Calibration of Radiation Survey Instruments.

The radiation survey instruments (see ATT.9.1) will be calibrated according to procedures adopted by the customer and approved by the Commission. Fig.2 (see ATT.9.2) shows a detail of the calibration facilities used at the UPR-Medical Sciences Campus.

Calibration will be performed according to the method and use of calibration sources as suggested by Appendix B of Regulatory Guide 10.8, Revision 2 (August, 1985)

10.2.1 Calibration of radioactivity measuring instruments.

Procedures:

a) Determination of the plateau and operating voltage:

1. Allow the instrument to warm up at least 30 minutes
2. Insert the standard source, beta-gamma emitter, into the holder.
3. Bring the H.V. to a minimum value by which counting rate starts to be obtained.
4. Note this starting voltage (V_i)

5. Increase the voltage applied to the tube in 50 volts increments taking a one minute count at each setting.
6. Record and plot on linear graph paper the count rate (cpm) vs. Voltage.
7. Stop raising the voltage when the curve begins to leave the plateau region.
8. Calculate the width and the slope of the plateau.
9. Select from the curve the optimum operating voltage (V_0) corresponding to approximately 2/3 of the plateau width.
10. Record (V_0) for future use of the instrument.

b. Measurement of the over-all efficiency:

1. Select the standard source, beta-gamma emitter, according to the radioisotope leakage or contamination expected.
2. By analysis of the decay activity calculate the standard source strength (S) in dpm
3. Insert the standard source into the holder.
4. Record the counting rate (R) in cpm.
5. The over-all efficiency will be expressed as the ratio (R/S)

10.2.2 Procedures for converting instrument counting results of leak test samples into microcuries.

1. Select a standard source made of the same radioactive material as the sealed source to be tested.
2. Determine the over-all efficiency (see above 10.2.1b)
3. Divide the counting rate R (cpm) of the leak test sample by the over-all efficiency.
4. To obtain microcuries, divide the result of step 3 by 2.22×10^6 dpm/uCurie.

5. Example: Co-60 Teletherapy Unit

Co-60 standard source activity = 0.0053 uCi
- June 15, 1985

$$\begin{aligned} S &= \text{Source strength on June 15, 1987} \\ &= 0.0053 \text{ uCi} \times e^{-\frac{0.693 \times 2}{5.27}} = 0.0041 \text{ uCi} \\ &\approx 0.0041 \text{ uCi} \times 2.22 \times 10^6 \text{ dpm/uCi} \\ &= 9102 \text{ dpm} \end{aligned}$$

Standard source counting rate = 3250 cpm

Then: Efficiency = $R/S = 0.357 = 36\%$

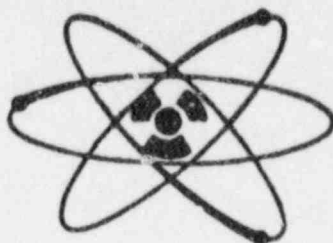
6. Suppose a net counting rate of a leak test sample = 14 cpm

$$\text{Then: } \frac{14 \text{ cpm}}{0.36} = 39 \text{ dpm}$$

$$\begin{aligned} \text{Activity in uCi} &= 39 \text{ dpm} / 2.22 \times 10^6 \text{ dpm/uCi} \\ &= 1.8 \times 10^{-5} \text{ uCi} \end{aligned}$$

7. See enclosed copy of Leak Test Certification being used.

SANTIAGO GOMEZ
Radiation Physics Consultant
NRC-License No. 52-17420-01



1821 Colonia St. - College Park
Rio Piedras, P.R. 00921
Tel. 809-751-0042

LEAK TEST CERTIFICATE

FOR

RADIOACTIVE SEALED SOURCES

ITEM TESTED:

LICENSEE:

NRC-License No. _____

METHOD OF TEST:

Using filter paper or Q-tips wipe all external surfaces of the sealed source and/or the closest movable parts of the equipment where the source is contained. Then, measure the net activity on the samples in a Radiation Detection System capable of detecting less than 0.005 μCi .

STANDARD:

RESULTS:

The test indicated the presence of not more than μCi of
Source in compliance with NRC Stds.: Yes No
NRC Regulations require that should any leak test reveal the presence of 0.005 μCi of removable contamination, the source must be removed from service.
Next leak test due _____

DATE:

SIGNED:

10.3.1 Safety precautions during leak testing

1. Use tweezers and gloves and never touch sources with the hands.
2. Utilize the Cave and Protective Lead Barrier Storage Unit (see ATT.9.2) when testing for leakage and contamination of sources such as needles, tubes or any other sealed source used for interstitial and intracavitary implants.
3. When testing sources in devices ensures that the device is in the "off" position. The Plastic beta shield of the Eye Applicators should be positioned on the shaft as close to the source as possible to minimize scattered radiation.
4. Then, using a portable G.M. Survey Meter and recently calibrated, perform a radiation survey prior to conducting the leak test to sources in devices, specially if they are strong beta-gamma emitters.
5. If radiation levels at the device surface are over 200 mR/hr:
 - a. Suspend leak testing procedures
 - b. Notify the Radiation Safety Officer of the Installation immediately for action.

10.3.2 Procedures for conducting leak test

1. Utilize swabs or cotton tips moistened with ethanol, detergent or any radiowash solution held by tweezers
2. Wipe thoroughly the source surface or the movable parts of source housing (sealed source in device) with the swabs or cotton tips.
3. Let the leak test samples dry and take them to the counting system for measuring removable contamination (see above 10.2.2)
4. Report results in the Leak Test Certification Form

11.1

Waste Disposal.

- a. In case that a leak test sample reveals an activity which demands appropriate disposal and/or storage of the sample, the customer's Radiation Safety Officer will be contacted immediately to take care of the sample.
- b. In the same manner, the authorized user of the leaking source will be enforced to follow recommendations to withdraw such source from service and to contact the manufacturer for final disposal of the source and/or device containing the source.