

Catholic University of Puerto Rico

Ponce, Puerto Rico - 00732

Biomedical Research Program

June 12, 1985

Mr. Paul R. Guinn
Senior License Reviewer
Nuclear Material Safety Section
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N. W.
Atlanta, Georgia 30323

Dear Mr. Guinn:

Thank you very much for your letter dated May 28, 1985, concerning our license application to possess and use a J.L. Shepherd Gamma Mark I Model 25 Irradiator. Our Mail Control Number is 18930.

Enclosing the information you request:

1. Experience of the individuals responsible for radiation safety:

The biographical sketches, training and experience of Dr. Gabriel Infante, Dr. José N. Correa and Mr. Efrain Bonilla, including in the original application demonstrate their experience in the field of radiation safety, radiation biology and chemistry, use of radioisotopes and use of irradiators. However, we are enclosing their specific experience with irradiators:

a. Dr. Gabriel A. Infante

M.S. Radiation Chemistry, University of Puerto Rico,
Mayaguez Campus, 1969.

Training Puerto Rico Nuclear Center, Mayaguez

Ph.D. Radiation Chemistry, Texas A&M University, College Station,
1973. Training Texas A&M University.

Post Doctoral - Radiation Chemistry, Carnegie Mellon University,
Pittsburgh, 1974. Training Radiation Research Laboratory
Carnegie Mellon University.

Post Doctoral - Radiation Laboratory, University of Notre Dame
Notre Dame, Indiana, 1978-1980

Professional Experience:

Puerto Rico Nuclear Center, now
Center for Energy and Environment Research, Mayaguez, 1974 to date

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Dr. Infante has also experience in gamma irradiators. Since 1967 to date (18 years). Dr. Infante has worked with the effects of gamma rays in chemical solutions, cell cultures and mice. Dr. Infante has worked with Gamma Cell - Co-60 Irradiator from Atomic Energy Canada Limited at University of Puerto Rico during two years; at Texas A&M University during two years; at Carnegie Mellon University one year and University of Notre Dame several summers. He has also experience with Co-60 Gamma Pool Irradiators and X-rays machines.

In conclusion Dr. Infante has more than 2,000 hours experience with gamma irradiators similar to the one requested application.

b. Dr. José N. Correa, M.D.

Dr. Correa had his Radiology Residence at Blodget Memorial Hospital in Michigan, 1959-1962.

Senior Investigator, Radiation Branch, National Cancer Institute Bethesda, Maryland, 1962-1964

Radiotherapist, Clínica Oncológica de Ponce - 1965 to date

Professor - Catholic University of Puerto Rico
1968 to date

Dr. José N. Correa has a great deal of experience with X-rays machines and gamma irradiators. He has used several gamma co-60 irradiators from Atomic Energy Canada Limited from Oak Ridge National Laboratory and the Puerto Rico Nuclear Center.

Dr. Correa as Chief of the Division of Radiotherapy at the Ponce Oncologic Clinic has been in charged of all irradiation facilities at the Clinic during the last fifteen years. He has worked specifically with a Peaker Model C9M Cobalt 60 Gamma Irradiator. Dr. Correa has also more than 2,000 hours experience with gamma irradiators.

c. Mr. Efrain Bonilla

M. S. Radiological Health, University of Puerto Rico, Mayaguez Campus, 1971-1972

Training at Puerto Rico Nuclear Center, Mayaguez

Mr. Bonilla who is our radiation safety officer has worked with Cobalt 60 Gamma Cell from the Atomic Energy Canada Limited and with the Puerto Rico Nuclear Center Cobalt 60 Gamma Pool irradiators for several years.

Mr. Bonilla has more than 200 hours experience with gamma irradiators and is very well trained in the radiation safety protocols and regulations necessary to use these kind of irradiators.

We certify that these professionals are very well prepared to use the requested gamma irradiator.

2. Training provide to other users

The J. L. Shepherd Gamma Mark I Model 25 Irradiator will be used for research purposes only. Students and other personnel will not be allowed to the irradiator room. The irradiator will be used only by Dr. Infante and Dr. Correa under the supervision of safety officer Mr. Efrain Bonilla. It will not be used for educational or training activities. Therefore, a training program it is not necessary. The experience of Drs. Infante and Correa and Mr. Bonilla has been described above. Furthermore, J. L. Shepherd will provide a two days (15 hours) training as soon as irradiator is installed. J. L. Shepherd has Nuclear Regulatory License No. 1770-70 from the State of California. This training will cover the design and operation of this specific irradiator.

It should be pointed out that the irradiator users (Dr. Infante, Dr. Correa and Mr. Bonilla) have taken several formal courses in Radiation Safety, Radiation Biology and Radiation Chemistry, which includes:

I. Fundamental of Radiation

- a. The radiation symbols
- b. What is radiation?
- c. Why is irradiation a health hazard?
- d. Interaction of radiation with matter
- e. Radiation Units

II. Exposure and Contamination

- a. Precautions againts exposure: time, distance, shielding
- b. External contamination and decontamination procedure
- c. Entry into the body
- d. Personnel monitoring devices

III. Radiation Protection Standards

- a. The exposure report and what it means.
- b. Maximum permissible levels.
- c. Restrictions (pregnancy, etc.)

IV. Radiation Protection Devices

- a. Protective Clothing
- b. Safe working habits
- c. Respirators

V. Instruments in Radiation Protection

- a. Survey meters
- b. Monitors
- c. Counters and Operational Voltage

VI. Radioactive Waste Disposal

- a. Containers
- b. Solid wastes
- c. Liquid wastes

VII. Emergency Procedures

VIII. Health Protection Forms

- IX. Other more specific topics about interaction of radiation with matter and living organisms.

All records on matters pertaining to the radiation protection of the irradiator users will be kept by the radiation safety officer, Mr. Bonilla and will be available for inspection at any time.

We would like to add then the J. L. Shepherd Gamma Mark I Model 25 Irradiator has a Vitoreen Primater 10 Audible and Visual warning radio-activity monitor (Set at 2.5 mr/hr).

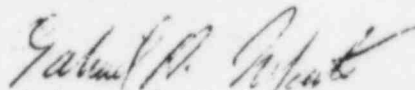
We really hope that we have answer your request.

We would appreciate if you can rush our license number for the irradiator, because the irradiator is ready in California to be shipped to Catholic University of Puerto Rico.

DR. PAUL R. GUINN
JUNE 12, 1985
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It has being held pending receipt of the radioactive license number (as you can see from the enclosing invoice) and will cost Catholic University storage charges. Therefore, we would really appreciate your diligence in this matter.

Sincerely yours,



Dr. Gabriel A. Infante
Professor and Director

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P.D. Our Mail Control Number 18930. Please, Rush. Thanks

JLS **SHEPHERD and Associates**
 740 SALEM ST.
 GLENDALE, CA 91203
 (213) 245-0187

PACKING SLIP

INVOICE NO. 85-057462

BILL
TO

UNIVERSIDAD CATOLICA DE PUERTO RICO
 DEPARTAMENTO DE COMPRAS
 AVENIDA LAS AMERICAS FRENTE al MUSEO
 de ARTE
 PONCE, PUERTO RICO 00732

SHIP
TO

Same as Bill to:
 ATTN: CAMPUS WAREHOUSE

| | | | | | |
|-----------------------------|----------|---------------|--------------|--------------|---------|
| DATE OF ORDER | SALESMAN | OUR ORDER NO. | TERMS | INVOICE DATE | |
| 10/8/84 | | MK2734 | NET 30 | 5/29/85 | |
| CUSTOMER PURCHASE ORDER NO. | F.O.B. | SHIPPED VIA | DATE SHIPPED | PREPAID | COLLECT |
| 8093 | | Ocean Freight | | | |

| QUANTITY ORDERED | QUANTITY SHIPPED | U/M | DESCRIPTION | PRICE | AMOUNT |
|------------------|------------------|-----|--|----------|------------|
| | | | Shipment ready to be shipped, being held pending receipt of your Radioactive License. | | |
| 1 | 1 | Ea. | J.L.Shepherd & Associates Mark I, Model 25, containing 7,000Ci of Cesium-137 Via Ocean Freight | 74555.00 | 74,555.0 |
| 2 | 2 | Ea. | Additional Test Tube Holders | 250.00 | 500.0 |
| 2 | 2 | Ea. | Additional Animal Chambers (Mice) | 410.00 | 820.0 |
| 1 | 1 | Ea. | Two-Speed Turn Table | 130.00 | 130.0 |
| 1 | 1 | Ea. | Six-Digit LED Preset Electronic Timer | 1150.00 | 1150.0 |
| | | | Total | | \$77,155.0 |
| | 1 | Ea. | DOT 20WC- Overpack, S.N. _____ for use in shipping above. WT: 1,500 lbs. VALUE: \$20,000.00. Please return promptly to us; PREPAID. List on Waybill: "Empty container for radioactive material, containing no residual radioactivity. NMFC 1000, Item 41070" for the appropriate freight rate. THANK YOU!!!!!!!!!!!! DEMURRAGE CHARGE - \$800.00 per month will be assessed beginning on the 31st day after shipment leaves our plant. | | |