U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 22

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. University of Puerto Rico College of Natural Sciences	In accordance with the letter dated July 7, 2011, 3. License number 52-01986-04 is amended in its entirety to read as follows:
2. Rio Piedras Campus P.O. Box 23360 San Juan, Puerto Rico 00931-3360	4. Expiration date June 30, 2011 (Extended) 5. Docket No. 030-01183 Reference No. 52-19434-02

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Hydrogen 3	A. Any	A. 30 millicuries
B. Carbon 14	B. Any	B. 10 millicuries
C. Phosphorus 32	C. Any	C. 30 millicuries
D. Phosphorus 33	D. Any	D. 20 millicuries
E. Sulfur 35	E. Any	E. 25 millicuries
F. Calcium 45	F. Any	F. 8.5 millicuries
G. Iodine 125	G. Any	G. 5 millicuries
H. Krypton 85	H. Sealed Source (Isotope Products Laboratory Models NER – 8295, 8285 , or 8275)	H. 2 millicuries per source and 2 millicuries total
I. Krypton 85	I. Sealed Sources (Isotope Products Laboratory Model NER - 8275)	I. 10 millicuries per source and 10 millicuries total

9. Authorized use:

A. through H. Research and development as defined in 10 CFR 30.4; animal studies; teaching and training of students.

H. In TSI, Inc. Model No. 3077 Static Charge Neutralizer for use with a TSI, Inc. Model 3080 Electrical Classifier (or elemental analysis of bulk material, if applicable).

I. In a custom Aerosol Neutralizer from the Leibniz-Institute for Tropospheric Research for used with a scanning mobility particle sizer.

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number
52-01986-04

Docket or Reference Number
030-01183
52-19434-02

Amendment No. 22

CONDITIONS

10. Licensed material may be used or stored at the licensee's facilities located at the University of Puerto Rico, Departments of Biology and Chemistry, Rio Piedras, Puerto Rico. Material authorized in 6.H. and 6.I may be used or stored at temporary job sites of the licensee anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material, including areas of exclusive Federal jurisdiction within Agreement States.

    If the jurisdiction status of a Federal facility within an Agreement State is unknown, the licensee should contact the Federal agency controlling the job site in question to determine whether the proposed job site is an area of exclusive Federal jurisdiction. Authorization for use of radioactive materials at job sites in Agreement States not under exclusive Federal jurisdiction shall be obtained from the appropriate state regulatory agency.

11. Licensed material listed in Subitems 6.A. through 6.G. shall be used by, or under the supervision of, Paul Bayman, Ph.D.; Graciela Candelas, Ph.D.; José E. Garcia-Arrarás, Ph.D.; Carlos González, Ph.D.; Fernando González, Ph.D.; Tugrul Giray, Ph.D.; José Lasalda, Ph.D.; W. Owen McMillan, Ph.D.; Reginald Morales, Ph.D.; Sandra Peña, Ph.D.; Jorge F Ramos; or Gary A Toranzos, Ph.D. Licensed material listed in Subitems 6.C. through 6.F. shall be used by, or under the supervision of Irving Vega, Ph.D. Licensed material listed in Subitem 6.H. shall be used or under the supervision of Jorge F. Ramos. Licensed material listed in Subitem 6.I. shall be used by, or under the supervision, of Jorge F. Ramos; or Stephan Mertes Ph.D.

12. The Radiation Safety Officer for this license is Jorge F. Ramos.

13. The licensee shall not use licensed material in or on human beings.

14. The licensee shall not use licensed material in field applications where it is released except as provided otherwise by specific condition of this license.

15. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.

16. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months or at the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State.

    B. Notwithstanding Paragraph A of this Condition, sealed sources designed to primarily emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.

    C. In the absence of a certificate from a transferor indicating that a leak test has been made within the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State, prior to the transfer, a sealed source received from another person shall not be put into use until tested

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number
52-01986-04

Docket or Reference Number
030-01183
52-19434-02

Amendment No. 22

and the test results received.

D. Sealed sources need not be tested if they contain only hydrogen-3; or they contain only a radioactive gas; or the half-life of the isotope is 30 days or less; or they contain not more than 100 microcuries of beta- and/or gamma-emitting material or not more than 10 microcuries of alpha-emitting material.

E. Sealed sources need not be tested if they are in storage and are not being used; however, when they are removed from storage for use or transferred to another person and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The leak test shall be capable of detecting the presence of 0.005 microcurie (185 becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie (185 becquerels) or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(c)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations.

G. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the licensee or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

H. Records of leak test results shall be kept in units of microcuries and shall be maintained for 5 years.

17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

18. The licensee shall conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.

19. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

20. The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal without regard to its radioactivity if the licensee:

A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection

MATERIALS LICENSE SUPPLEMENTARY SHEET

License Number
52-01986-04

Docket or Reference Number
030-01183
52-19434-02

Amendment No. 22

survey meter set on its most sensitive scale and with no interposed shielding; and

B. Removes or obliterates all radiation labels, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee; and

C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.

21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

22. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated April 17, 2001 (ML011140498)
B. Letter dated October 25, 2004 (ML043030433)
C. Letter dated April 3, 2006 (ML061020592)
D. Letter dated June 29, 2010 (ML101940073)
E. Letter dated July 7, 2011 (ML112020441)
F. Facsimile received July 22, 2011 (ML112360529)
G. Facsimile dated August 4, 2011 (ML112170382)
H. Facsimile dated August 11, 2011 (ML112230851)
I. Facsimile dated August 24, 2011 (ML112360514)

For the U.S. Nuclear Regulatory Commission

Date August 25, 2011

By ***Original signed by Elizabeth Ullrich***

Elizabeth Ullrich
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406