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	In accordance with the letter dated February 26, 2008,
1. Yale University Radiation Safety Section - OEHS	3. License No. 06-00183-03 is amended in its entirety to read as follows:
2. 135 College Street, First Floor New Haven, Connecticut 06510-2411	4. Expiration Date: July 31, 2015
	5. Docket No. 030-00582

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. Any byproduct material with Atomic Numbers 1 through 83	A. Any	A. Not to exceed 1 curie per radionuclide and 75 curies total
B. Hydrogen 3	B. Any	B. 90 curies
C. Carbon 14	C. Any	C. 1 curie
D. Phosphorus 32	D. Any	D. 10 curies
E. Sulfur 35	E. Any	E. 10 curies
F. Strontium 90	F. Sealed source (Amersham Model SIF.D1)	F. Not to exceed 600 millicuries total
G. Iodine 125	G. Any	G. 5 curies
H. Cesium 137	H. Sealed source (Amersham Model X.8)	H. Not to exceed 12 curies total
I. Cesium 137	I. Sealed source (ICN Model 76007)	I. Not to exceed 4 curies per source and 8 curies total
J. Thulium 170	J. Any	J. 500 millicuries
K. Polonium 208	K. Any	K. 2 microcuries
L. Polonium 209	L. Any	L. 2 microcuries
M. Polonium 210	M. Any	M. 100 millicuries
N. Actinium 227	N. Any	N. 1 millicurie

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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
O. Thorium 228	O. Any	O. 2 millicuries
P. Thorium 229	P. Any	P. 10 microcuries
Q. Thorium 230	Q. Any	Q. 2 microcuries
R. Thorium 232	R. Any	R. 1 microcurie
S. Uranium 232	S. Any	S. 1 millicurie
T. Uranium 234	T. Any	T. 1 microcurie
U. Uranium 236	U. Any	U. 0.05 microcuries
V. Protactinium 233	V. Any	V. 1 millicurie
W. Protactinium 234	W. Any	W. 1 millicurie
X. Neptunium 237	X. Any	X. 1 millicurie
Y. Neptunium 239	Y. Any	Y. 10 millicuries
Z. Americium 241	Z. Any	Z. 50 millicuries
AA. Americium 241	AA. Sealed source (ICN Model 79000.NRC 239)	AA. Not to exceed 1500 millicuries total
BB. Americium 241	BB. Sealed source (Gammatron Model HP-AN3,HP-AN1; Amersham Model AMN.22)	BB. Not to exceed 10 curies per source and 40 curies total
CC. Curium 244	CC. Sealed source (IPL Model SKA100)	CC. 0.3 microcuries
DD. Curium 248	DD. Any	DD. 4 microcuries
EE. Californium 252	EE. Any	EE. 4.5 millicuries

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9. Authorized use:

A. through EE. Research and development as defined in 10 CFR 30.4; animal studies; teaching and training of students; calibration and checking of licensee's instruments.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the Yale University campus or at other locations under direct control of Yale University, New Haven, Connecticut, and at the Connecticut Mental Health Center, 34 Park Street, New Haven, Connecticut.

11. A. Licensed material shall only be used by, or under the supervision of, individuals designated, in writing, by the Radiation Safety Committee. The licensee shall maintain records of individuals designated as users for three years following the last use of licensed material by the individual.

    B. The Radiation Safety Officer (RSO) for this license is Peter A. Reinhardt.

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

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

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

15. A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed 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 three 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 and the test results received.

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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 five years.

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

17. 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 five 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.

18. 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 Commission or an Agreement State to perform such services.

19. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

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

    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 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 three 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. Radioactive waste possessed under this license shall be stored in accordance with the statements, representations, and procedures included with the licensee's waste storage plan described in the application dated January 27, 2005.

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

23. Notwithstanding the requirements of License Condition 24, the licensee is authorized to make program changes and changes to procedures specifically identified in the condition, which were previously approved by the U. S. Nuclear Regulatory Commission and incorporated into the license without prior Commission approval as long as:

    A. The proposed revision is documented, reviewed, and approved by the licensee's Radiation Safety Committee in accordance with established procedures prior to implementation.

    B. The revised program is in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.

    C. The licensee's staff is trained in the revised procedures prior to implementation.

    D. The licensee's audit program evaluates the effectiveness of the change and its implementation.

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24. 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 January 27, 2005 [ML050330638]
    B. Letter dated June 8, 2005 [ML051610620]

For the U. S. Nuclear Regulatory Commission

Date May 8, 2008

By ***Original signed by Bryan A. Parker***

Bryan A. Parker
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406