

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
October 20, 2011,

1. **Aptuit, LLC**

3. License number 24-15595-01 is amended in its entirety to read as follows:

2. 10245 Hickman Mills Drive
Kansas City, MO 64134-0708

4. Expiration date **September 30, 2014**

5. Docket No. 030-09415
Reference No.

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. 100 curies
B. Carbon-14	B. Any	B. 100 curies
C. Sulfur-35	C. Any	C. 1.5 curies
D. Iodine-125	D. Any	D. 70 millicuries
E. Barium-133	E. Sealed source (Model No. IND 1401)	E. 20 millicuries
F. Cesium-137	F. Sealed source	F. 90 microcuries

9. **Authorized Use:**

- A. through C. To be used for research and development as defined in 10 CFR 30.4, and for radiosynthesis of radiolabeled organic chemicals.
- D. To be used for research and development as defined in 10 CFR 30.4.
- E. To be used in a Perkin Elmer Tricarb 2900TR liquid scintillation counter.
- F. To be used in a Beckman Model 100C, 3801, or 6500 or equivalent liquid scintillation counter.

CONDITIONS

- 10. Licensed material shall be used only at the licensee's facilities located at 10245 Hickman Mills Drive, Kansas City, Missouri.
- 11. The Radiation Safety Officer for this license is Clint Gregg.

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12. Licensed material listed in Item 6 above is only authorized for use by, or under the supervision of, the following individuals and uses indicated:

Authorized User

Materials and Use

Clint Gregg

Items 6.E. and 6.F.

Mike Marx, Ph.D.

Hydrogen-3 and Carbon-14 for research and development and radiosynthesis, and Items 6.E. and 6.F.

John Goehl

Hydrogen-3 and Carbon-14 for research and development and radiosynthesis, and Items 6.E. and 6.F.

David Leuck

Hydrogen-3 and Carbon-14 for research and development and radiosynthesis, and Items 6.E. and 6.F.

Hari Pennaka

Hydrogen-3 and Carbon-14 for research and development and radiosynthesis, and Items 6.E. and 6.F.

Murali Ukkalam

Hydrogen-3 and Carbon-14 for research and development and radiosynthesis, and Items 6.E. and 6.F.

Andrew Damon

Hydrogen-3 and Carbon-14 for research and development, and Items 6.E. and 6.F.

Jim Windels

Hydrogen-3 and Carbon-14 for research and development, and Items 6.E. and 6.F.

Kevin W. Carter, Ph.D.

Hydrogen-3, Carbon-14, Sulfur-35, and Iodine-125 for research and development,

13. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.
14. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
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. 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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- C. Sealed sources need not be leak 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 no more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material.
- D. 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.
- E. 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.
- F. Tests for leakage and/or contamination, limited to leak test sample collection, 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.
- G. Records of leak test results shall be kept in units of microcuries and shall be maintained for 3 years.
16. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:
- A. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
- B. A record of each disposal permitted under this License Condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
17. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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18. 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 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. Applications dated October 25, 2007 (limited to the change in the RSO and Attachment 5, "Facility Diagrams."), and April 1, 2008; and
- B. Letters dated April 7, 2008, February 2, 2009, June 8, 2009, July 2, 2009, March 29, 2010, May 21, 2010, June 2, 2010, October 8, 2010, January 21, 2011, and **October 20, 2011.**

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date JAN 04 2012By William P. Reichhold
William P. Reichhold
Materials Licensing Branch
Region III