U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 43

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. American Radiolabeled Chemicals	In accordance with application dated **July 27, 2010**
	3. License number 24-21362-01 is **amended** in its entirety to read as follows:
2. 101 ARC Drive St. Louis, MO 63146	4. Expiration date October 31, 2011
	5. Docket No. 030-20567 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. Carbon-14	A. Any	A. 400 curies
B. Calcium-45	B. Any	B. 1 curie
C. Chlorine-36	C. Any	C. 300 millicuries
D. Chromium-51	D. Any	D. 100 millicuries
E. Hydrogen-3	E. Any	E. 12,000 curies
F. Iodine-125	F. Any	F. 1.5 curies
G. Phosphorus-32	G. Any	G. 1 curie
H. Phosphorus-33	H. Any	H. 1 curie
I. Sulfur-35	I. Any	I. 10 curies
J. Iron-59	J. Prepackaged units	J. 100 millicuries
K. Strontium-85	K. Prepackaged units	K. 100 millicuries
L. Cobalt-60	L. Prepackaged units	L. 100 millicuries
M. Iron-55	M. Prepackaged units	M. 100 millicuries
N. Iodine-131	N. Prepackaged units	N. 100 millicuries

9. Authorized Use:

A. through I. To be used in the manufacture and synthesis of radiolabeled chemicals for distribution to persons authorized to receive the licensed material under the terms of a specific license issued by the Commission or an Agreement State.

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J. through N. For redistribution to persons authorized to receive the licensed material under the terms of a specific license issued by the Commission or an Agreement State.

A. through I. **Possession incident to outdoor site construction and site beautification activities involving movement of site soils, radiological site characterization, collection and analysis of water and soil samples containing residual contamination.**

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 100 ARC Drive and 104 ARC Drive, St. Louis, Missouri.

11. A. Licensed material listed In Items 6.A. through 6.N. shall be used by, or under the supervision of, Surendra K. Gupta, Ph.D., Kamal Das, Ph.D., or Janardhanam Selvasekaran, Ph.D.

    B. Licensed material listed in Items 6.F., and 6.J. through 6.N. shall be used by, or under the supervision of, Robert C. Speth, Ph.D.

12. The Radiation Safety Officer for this license is Regis Greenwood.

13. This license does not authorize commercial distribution of licensed material to persons generally licensed pursuant to 10 CFR Part 31 or to persons exempt from licensing pursuant to 10 CFR 30.18.

14. Licensed material shall not be used in or on human beings.

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

16. The licensee shall conduct a physical inventory every six months to account for all sealed sources and devices containing licensed material received and possessed under the license.

17. 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 by 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 by 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.

    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.

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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 an/or contamination, limited to leak test sample collection shall be performed by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is not authorized to perform the analysis. Analysis of leak test samples must be performed by persons specifically licensed by the 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 3 years.

18. Sealed sources containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.

19. The licensee is authorized to hold radioactive material with a physical half-life of less than 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 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 the storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of east waste container, and the name of the individual who performed the disposal.

20. The Radiation Safety Officer shall have the authority to stop any operation which he deems to constitute a threat to health and safety or violates the license or NRC regulations.

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21. 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 30, 2009 (excluding the use of the building 300 annex); and

    B. Letters dated **August 3, 2009, October 14, 2009, July 27, 2010**, July 30, 2010, September 8, 2010, (including the attached Radiation Protection Program and Standard Operating Procedures), September 22, 2010 (received September 23, 2010), September 30, 2010 (received September 30, 2010) and **October 12, 2010**.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date OCT 14 2010

By Mike McCann

Mike McCann, Senior Health Physicist
Materials Control, ISFSI, and Decommissioning Branch
Region III