

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.

PCO 3214  
Licensee

317448

- 1. American Radiolabeled Chemicals
- 2. 101 ARC Drive  
St. Louis, MO 63146

In accordance with letter dated August 13, 2008,

3. License number 24-21362-01 is **amended** in its entirety to read as follows:

4. Expiration date July 31, 2009

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. Iodine-131   | G. Any                           | G. 100 millicuries   |
| H. Phosphorus-32                                      | H. Any                           | H. 1 curie   |
| I. Phosphorus-33                                      | I. Any                           | I. 1 curie   |
| J. Sulfur-35  | J. Any                           | J. 10 curies   |
| K. Iron-59  | K. Prepackaged units             | K. 100 millicuries   |
| L. Strontium-85                                       | L. Prepackaged units             | L. 100 millicuries   |
| M. Cobalt-60  | M. Prepackaged units             | M. 100 millicuries   |
| N. Iron-55  | N. Prepackaged units             | N. 100 millicuries   |

9. Authorized Use:

A. through J. 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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K. 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.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 102 ARC Drive and 104 ARC Drive, St. Louis, Missouri.
11. Licensed material shall be used by, or under the supervision of individuals designated by the Radiation Safety Committee, Surendra K. Gupta, Ph.D., Chairman.
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 and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
  - B. Notwithstanding Paragraph A of this Condition, sealed sources designed to 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 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
  - D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
  - E. Sealed sources need not be leak tested if:
    - (i) they contain only hydrogen-3; or
    - (ii) they contain only a radioactive gas; or
    - (iii) the half-life of the isotope is 30 days or less; or

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- (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
  - (v) they are not designed to emit alpha particles, 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 or detector cell 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 of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.
- G. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to perform such services.
18. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
19. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 days for decay-in-storage before disposal in ordinary trash provided:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
  - B. 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.
  - C. 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 each waste container, and the name of the individual who performed the disposal.
20. The licensee shall continuously monitor the exhaust air from the waste compactor at the point of release to unrestricted areas. Samples shall be collected and analyzed on a weekly basis.
21. 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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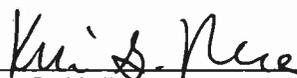
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22. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear 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 October 28, 2002 (excluding Radiation Protection Program dated October 16, 2002); and
- B. Letters dated August 19, 2003 (excluding Decommissioning Funding Plan), November 3, 2003, May 10, 2004, January 25, 2005 (limited only to information pertaining to the increase in possession limit for iodine-125), and February 8, 2005 (including Radiation Protection Program dated October 21, 2004), two letters dated March 24, 2005, May 24, 2005, January 25, 2005, April 24, 2006, and July 26, 2006

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date OCT 17 2008

By

  
Kevin G. Null  
Materials Licensing Branch  
Region IIII