

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 application dated May 29, 2007,
1. U. S. Environmental Protection Agency	3. License No. 32-14048-04 is amended in its entirety to read as follows:
2. Mail Code D343-02 Research Triangle Park, North Carolina 27711	4. Expiration Date: May 31, 2014
	5. Docket No. 030-08631

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 Nos. 1 through 83 inclusive, except as specified below	A. Any	A. 50 millicuries per radionuclide and 5 curies total
B. Hydrogen 3	B. Any	B. 250 millicuries
C. Carbon 14	C. Any	C. 250 millicuries
D. Phosphorus 32	D. Any	D. 250 millicuries
E. Chromium 51	E. Any	E. 250 millicuries
F. Any byproduct material as defined in 10 CFR 40.4 (see also paragraph 11.e(2) of the Atomic Energy Act	F. Mill tailings	F. 75 kilograms
G. Americium 241	G. Calibration solution	G. 10 microcuries
H. Hydrogen 3	H. Foils and plated sources	H. 1 curie per source and 30 curies total
I. Nickel 63	I. Foils and plated sources	I. 20 millicuries per source and 10 curies total
J. Carbon 14	J. Sealed sources	J. 15 millicuries per source and 25 millicuries total
K. Krypton 85	K. Sealed gas sources	K. 30 millicuries per source and 3 curies total

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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 |
| L. Americium 241 | L. Sealed sources | L. 2 millicuries per source and 20 millicuries total |

9. Authorized use:

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| A. through F. | Research and development as defined in 10 CFR 30.4; animal studies. |
| G. | For use as calibration and/or reference standards incident to research and development. |
| H. and I. | For use in gas chromatographs for sample analysis. |
| J. and K. | For use in custom particle size analysis, detection and calibration related to air monitoring. |
| L. | For use in aerosol neutralizers for air monitoring and aerosol analysis. |

CONDITIONS

10. Licensed material shall be used only at EPA facilities located at:
- 2525 Highway NC 54, Durham, North Carolina;
 - 4930 Page Road (I-40 and Page Road), Durham, North Carolina;
 - 104 Mason Farm Road, Chapel Hill, North Carolina;
 - 109 T. W. Alexander Drive, Research Triangle Park, North Carolina;
 - Buildings 106 and 108, 111 T. W. Alexander Drive, Research Triangle Park, North Carolina; and
 - Licensed material specified in Subitems 6.H.-L. may also be used at temporary job sites of the licensee anywhere in the United States.
11. A. Licensed material shall only be used by, or under the supervision of, individuals designated by the Radiation Safety Committee, Michael F. Hughes, Ph.D., Chairperson.
- B. The Radiation Safety Officer (RSO) for this license is Todd W. Baker, or in his absence, Ritchie D. Buschow.
12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of unsealed byproduct material to quantities less than 10^5 of the applicable limits in Appendix B of 10 CFR Part 30, as specified in 10 CFR 30.35(d).
13. Licensed material shall not be used in or on human beings.

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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. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
16. This license does not authorize commercial distribution of licensed material.
17.
 - A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years;
 - 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 three months;
 - C. In the absence of a certificate from a transferor indicating that a leak test has been made within six 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:
 - 1) they contain only hydrogen-3; or
 - 2) they contain only a radioactive gas; or
 - 3) the half-life of the isotope is 30 days or less; or
 - 4) they contain not more than 370 megabecquerels [100 microcuries (uCi) of beta and/or gamma emitting material or not more than 370 kilobecquerels (10 uCi) of alpha emitting material; or
 - 5) 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;

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- F. The leak test shall be capable of detecting the presence of 185 becquerels (Bq) (0.005 uCi) of radioactive material on the test sample. Records of leak test results shall be kept in units of microcurie and shall be maintained for inspection by the Commission. If the test reveals the presence of 185 Bq (0.005 uCi) or more of removable contamination, a report shall be filed with the U. S. Nuclear Regulatory Commission 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 five days of the date the leak test result is known with the appropriate U. S. Nuclear Regulatory Commission, Regional Office referenced in Appendix D of 10 CFR Part 20. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcurie and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection; and
- G. The licensee is authorized to collect leak tests samples for analysis by the licensee. Alternatively, 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 shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U. S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State
20. The licensee shall conduct a physical inventory every six months to account for all sources and/or devices received and possessed under the license.
21. 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.
22. 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 temperature 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.
23. The licensee is authorized to hold radioactive material with a physical half-life of 120 days or less 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

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- B. Removes or obliterates all radiation labels, except 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.
24. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's application dated December 1, 2003.
25. 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."
26. Pursuant to 10 CFR 20.2002 and 20.2004, the licensee is authorized to dispose of licensed material by incineration provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table 2, Column 1, 10 CFR Part 20. Ash residues may be disposed of as ordinary waste provided appropriate surveys pursuant to 10 CFR 20.2002 are made to determine that concentrations of licensed materials appearing in the ash residues do not exceed the concentrations (in terms of microcuries per gram) specified for water in Appendix B, Table 2, Column 2, 10 CFR Part 20.
27. Notwithstanding the requirements of Condition 28, the licensee is authorized to make program changes and changes to procedures specifically identified in the application dated December 1, 2003, which were previously approved by the 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; and
 - D. the licensee's audit program evaluates the effectiveness of the change and its implementation.

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28. 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 December 1, 2003 (ML033420975)
- B. Letter dated May 29, 2007 (ML071580649)
- C. Letter dated July 25, 2007 (ML072140732)

For the U.S. Nuclear Regulatory Commission

Date August 27, 2007

By

Original signed by Dennis R. Lawyer

Dennis R. Lawyer
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406