NRC FORM 374



U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 23

# 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.

PC103620 317391

Licensee

1. Environmental Protection Agency

2. 26 W. Martin Luther King Drive
Cincinnati, OH 45268

In accordance with and the letter dated **August 6, 2008**,

3. License number 34-12736-02 is amended in its entirety to read as follows:

4. Expiration date: March 31, 2017

5. Docket No. 030-13379
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. 1Ci |
| B. Carbon-14 | B. Any | B. 1Ci |
| C. Sulfur-35 | C. Any | C. 500 Millicuries |
| D. Cadmium-109 | D. Foils or plated sources registered either with the NRC or with an Agreement State | D. 200 millicuries. No single detector cell to exceed 100 millicuries |
| E. Cobalt-57 | E. Sealed source (WEB Research Co. Inc. Model No. MC0 7Series) | E. 200 millicuries. No single detector cell to exceed 100 millicuries |
| F. Natural Uranium | F. Any | F. 200 grams |
| G. Radium 226/228 | G. Any | G. 300 micrograms |
| H. Nickel-63 | H. Any foil or plated sources in detector cells approved for licensing purposes by the NRC or an Agreement State | H. 800 millicuries. No single detector cell to exceed 20 millicuries |

9. Authorized Use:

A. through C. To be used for research and development, as defined in 10 CFR 30.4, sections 30.4 including, tracer studies, sources for internal calibration and standardization of ionizing radiation measuring instruments, animal studies, preparation of standards, analysis of environmental samples.

D. through G. To be used as described in application dated August 20, 2007

**MATERIALS LICENSE**
**SUPPLEMENTARY SHEET**

License Number
34-12736-02

Docket or Reference Number
030-13379

Amendment No. 22

H. To be used in gas chromatography devices for sample analysis.

CONDITIONS

10. A. Licensed material in Items 6.A. through 6.H. may be used at the licensee's facilities located at 26 W. Martin Luther King Drive, Cincinnati, Ohio; 5995 Center Hill Road, Cincinnati, Ohio and 1600 Gest Street, Cincinnati, Ohio.

B. Licensed material in item 6.H. may be used at the licensee's facilities located at 1003 U.S.Highway 50, Milford, Ohio.

11. The Radiation Safety Officer for this license is Richard J. Falk.

12. Licensed material in Items 6.A. through 6.H. shall be used by, or under the supervision of, individuals designated by Richard J. Falk, Radiation Safety Officer.

13. Licensed material listed in Item 6 above is only authorized for use by, or under the supervision of, the following individual(s) for the materials and uses indicated:

| Authorized Users | Materials and Uses |
|---|---|
| Garland Shay Fout, Ph.D | Hydrogen-3, Carbon-14, and Sulfur-35 |
| Souhail Al-Abed, Ph.D. | Carbon-14. |
| Chris Impellitteri | Natural Uranium, Radium-226 and Radium-228 |

14. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of unsealed licensed material to quantities less than $10^5$ times the applicable limits in Appendix C of 10 CFR Part 20, as specified in 10 CFR 30.35(d).

15. If only one radionuclide is possessed, the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column I. If two or more radionuclides are possessed, the possession limit is determined as follows: for each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column I, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

16. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the limits specified in 10 CFR 30.72 which require consideration of the need for an emergency plan for responding to a release of licensed material.

17. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed the intervals specified by the certificate of registration referred to in 10 CFR 32.210 or by an Agreement State.

B. In 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 NRC under 10 CFR 32.210 or by an Agreement State prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

**MATERIALS LICENSE**
**SUPPLEMENTARY SHEET**

License Number
34-12736-02

Docket or Reference Number
030-13379

Amendment No. 22

C. 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 that 10 years without being tested for leakage and/or contamination.

D. 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.

E. 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.

F. Records of leak tests results shall be kept in units of microcuries and shall be maintained for 3 years.

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 temperature from exceeding that specified in the certificate of registration issued by the NRC pursuant to 10 CFR 32.210 or equivalent regulations from an Agreement State.

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

20. The licensee shall not acquire licensed material in a sealed source or device that contains a sealed source unless the source or device has been registered with the Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

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

22. 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.

23. Except as otherwise specified in this license, the licensee shall have available and follow the instructions contained in the manufacturer's instruction manual for the chromatography device.

**MATERIALS LICENSE**
**SUPPLEMENTARY SHEET**

License Number
34-12736-02

Docket or Reference Number
030-13379

Amendment No. 22

24. Licensed material shall not be used in or on humans except as provided otherwise by specific condition of this license.

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

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

27. 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.

28. 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."

29. 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 August 20, 2007; and

    B. Letter dated February 26, 2008.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date NOV 06 2008

By Colleen Carol Casey
Colleen Carol Casey
Materials Licensing Branch
Region III