

MATERIALS LICENSE

Amendment No. 04

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, 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. The Ohio State University
Office of the Vice President
for Health Services
2. 370 W. Ninth Avenue
200 Meiling Hall
Columbus, OH 43210-1238

In accordance with application dated
July 29, 1985

3. License number SNM-732 is amended in its
entirety to read as follows:

4. Expiration date September 30, 1990

5. Docket or
Reference No. 070-00801

6. Byproduct, source, and/or
special nuclear material

A. Plutonium (Principal
radionuclide Pu-239)

B. Any byproduct material

7. Chemical and/or physical
form

A. Encapsulated as a
Pu-Be neutron source
(NUMEC)

B. Activation Products
from Pu-Be source
irradiations

8. Maximum amount that licensee
may possess at any one time
under this license

A. 80 grams

B. See Item 9.B.
below

9. Authorized Use

- A. To be used in a neutron howitzer for student instruction.
- B. For student instruction.

CONDITRIONS

10. Licensed material shall be used only at The Ohio State University, Department of Chemistry, Room 070, Evans Laboratory, 88 W. 18th Avenue, Columbus, Ohio.
11. The licensee shall comply with the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports to Workers; Inspections" and Part 20, "Standards for Protection Against Radiation."
12. Licensed material shall be used by, or under the supervision of, Richard F. Firestone, Ph.D.
13. Sealed sources containing licensed material shall not be opened.

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

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14. A. Each encapsulated plutonium source designed for the purpose of emitting neutron or gamma radiation shall be tested for leakage at intervals not to exceed six (6) months. In the absence of a certificate from a transferor indicating that a test has been made within six (6) months prior to the transfer, a sealed source received from another person shall not be put into use until tested.
- B. The test shall be capable of detecting the presence of 0.005 microcurie of alpha contamination on the test sample. The test sample shall be taken from the source or from appropriate accessible surfaces of the device in which the sealed source is permanently or semipermanently mounted or stored. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.
- C. If the test reveals the presence of 0.005 microcurie or more of removable alpha contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired by a person appropriately licensed to make such repairs or to be disposed of in accordance with the Commission regulations. Within five (5) days after determining that any source has leaked, the licensee shall file a report with the Material Licensing Branch, Division of Fuel Cycle and Material Safety, U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, describing the source, the test results, the extent of contamination, the apparent or suspected cause of source failure, and the corrective action taken. A copy of the report shall be sent to the U. S. Nuclear Regulatory Commission, Region III, 799 Roosevelt Road, Glen Ellyn, Illinois 60137.
- D. The periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another person unless they have been leak tested within six (6) months prior to the date of use or transfer.
15. Licensed material shall not be used in or on human beings or in products distributed to the public.
16. Except for plutonium contained in a medical device designed for individual human application, no plutonium, regardless of form, shall be delivered to a carrier for shipment by air transport or transported in an aircraft by the licensee except in packages the design of which the NRC has specifically approved for transport of plutonium by air.
17. The licensee shall develop procedures to be followed in the event of fire or other emergencies that may involve damage to or loss of the Pu-Be source.

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18. Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in application dated July 29, 1985. The Nuclear Regulatory Commission's regulations shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations.



For the U.S. Nuclear Regulatory Commission

Original Signed

By B.J. Holt

Materials Licensing Section, Region III

Date September 5, 1985

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