

## 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, 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); and to import such byproduct and source material. 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. Oral Roberts University
2. 7777 South Lewis Avenue  
Tulsa, Oklahoma 74171

In accordance with application dated  
March 2, 1983

3. License number 35-18282-01 is amended in  
its entirety to read as follows:

4. Expiration date November 30, 1988

5. Docket or Reference No. 030-14781

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

A. Any byproduct material  
with Atomic Numbers 1-83,  
inclusive

7. Chemical and/or physical  
form

A. Any

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

A. Not to exceed  
500 millicuries  
per radionuclide  
and 10 curies  
total, except:

|                |           |
|----------------|-----------|
| Hydrogen-3     | 10 curies |
| Technetium-99m | 2 curies  |
| Molybdenum-99  | 2 curies  |
| Carbon-14      | 5 curies  |
| Phosphorus-32  | 2 curies  |
| Phosphorus-33  | 2 curies  |
| Chromium-51    | 1 curie   |
| Iodine-125     | 2 curie   |
| Iodine-131     | 2 curies  |
| Iridium-192    | 2 curies  |

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B. Any byproduct material  
with Atomic Numbers 3-84,  
inclusiveB. Sealed or plated  
sourcesB. Not to exceed  
1 millicurie  
per radionuclide  
and 1 curie  
total, except:

|               |                      |
|---------------|----------------------|
| Nickel-63     | 200 milli-<br>curies |
| Cesium-137    | 2 curies             |
| Strontium-90  | 200 milli-<br>curies |
| Americium-241 | 30 milli-<br>curies  |
| Iodine-125    | 500 milli-<br>curies |

C. Uranium (Depleted in  
Uranium-235)

C. Cadmium plated metal

C. 800 kilograms

## 9. Authorized use

A. and B. Medical research, diagnosis, and therapy; research and development as  
defined in Section 30.4(q), 10 CFR Part 30; and academic instruction.

C. As shielding in linear accelerator(s).

## CONDITIONS

10. Licensed material shall be used only at 7777 South Lewis, Tulsa, Oklahoma;  
8131 South Lewis, Tulsa, Oklahoma; 7306 South Lewis, Tulsa, Oklahoma; and  
1831 East 71st Street, Tulsa, Oklahoma. Carbon-14 may be used at Lake Bixoma,  
Oklahoma.

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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, individuals designated by the Oral Roberts University Radiation Safety/Medical Isotopes Committee.
13. A. (1) Each sealed source acquired from another person and containing licensed material, other than hydrogen-3, with a half-life greater than 30 days and in any form other than gas shall be tested for contamination and/or leakage prior to use. In the absence of a certificate from a transferor indicating that a test has been made within 6 months prior to the transfer, a sealed source received from another person shall not be put into use until tested.
- (2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries or less of beta and/or gamma emitting material or 10 microcuries or less of alpha emitting material.
- (3) Except for alpha sources, 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 6 months prior to the date of use or transfer.
- B. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to use or transfer as a sealed source. If the inspection or test reveals any construction defects or 0.005 microcurie or greater of contamination, the source shall not be used or transferred as a sealed source until it has been repaired, decontaminated, and retested.

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- C. Each sealed source containing licensed material, other than hydrogen-3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed 6 months except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months.
- D. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently or semipermanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission.
- E. If the test required by Subsection A. or C. of this condition reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the test with the U. S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Dr., Suite 1000, Arlington, Texas 76011, describing the equipment involved, the test results, and the corrective action taken.
14. Sealed sources containing licensed material shall not be opened.
15. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), Title 10, Code of Federal Regulations, Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

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16. Patients containing iodine-131 for the treatment of thyroid carcinoma (or patients containing therapeutic quantities of gold-198) shall remain hospitalized until the residual activity is 30 millicuries or less.
17. The licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions."
18. The licensee is authorized to hold radioactive material with a physical half-life of less than 65 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. Prior to disposal as normal waste, radioactive waste shall be monitored to determine that its radioactivity cannot be distinguished from background with typical low-level laboratory survey instruments. All radiation labels will be removed or obliterated.
  - C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.
19. Radioactive gases as free gas or in solution, to be administered to humans, shall be procured from a supplier who distributes the product indicated for human use in accordance with the Federal Food, Drug, and Cosmetic Act.
20. Experimental animals administered licensed materials or their products shall not be used for human consumption.



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21. For a period not to exceed 60 days in any calendar year, a visiting physician is authorized to use licensed material for human use under the terms of this license, provided the visiting physician:

- (a) Has the prior written permission of the hospital's administrator and its Radiation Safety Committee, and
- (b) Is specifically named as a user on a Nuclear Regulatory Commission license authorizing human use, and
- (c) Performs only those procedures for which he is specifically authorized by a Nuclear Regulatory Commission license.

The licensee shall maintain for inspection by the Commission, copies of the written permission specified in Subitem (a) above and of the license(s) specified in Subitems (b) and (c) above. These records shall be maintained for 5 years from the time the licensee grants its permission under Subitem (a) above.

22. 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 March 2, 1983, and letters dated January 26, 1982, and October 28, 1983. 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  
Jack E. Whitten

By

Material Radiation Protection Section  
Region IV  
Arlington, Texas 76011

Date

NOV 23 1983

Original Record Copy

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