

**MATERIALS LICENSE**  
SUPPLEMENTARY SHEET

License number

21-00243-06

Docket or Reference number

030-01989

Amendment No. 23

Butterworth Hospital  
Radiology Department  
100 Michigan, N.E.  
Grand Rapids, MI 49503

In accordance with letter dated June 10, 1987, License Number 21-00243-06 is amended as follows:

Subitems 6.M., 7.M., 8.M. and 9.M. are added:

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

M. Cesium-137

M. Sealed sources  
(ORNL-RAMCO-50  
or ISO-1000)

M. 3,000 curies

9. Authorized Use

M. To be used in an AECL Gammacell 1000 irradiator for the irradiation of blood, blood products, biological or other samples except highly flammable or explosive items.

Conditions 11., 13., and 20. are amended to read:

11. Licensed material listed in Item 6 above is authorized for use by the following individual(s) for the materials and uses indicated:

William E. Kincaid, M.D.

Groups I, II, III, IV, V and VI  
Xenon-133

In vitro clinical diagnostic studies

Americium-241 anatomical marker

Gadolinium-153 for bone mineral analysis

Alan T. Davis, Ph.D.

Hydrogen-3 and Carbon-14 for

In vitro laboratory research

Robert W. Gillies, M.D.

Group VI

Gadolinium-153 for bone mineral analysis

John H. Edlund, M.D.

Group VI

Gadolinium-153 for bone mineral analysis

Thomas Vitalis

Cesium-137 irradiator

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REQ3 LIC30  
21-00243-06 PDR

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13. A. (1) The source(s) specified in Item(s) 7.H., 7.L. and 7.M. shall be tested for leakage and/or contamination at intervals not to exceed 6 months. Any source received from another person which is not accompanied by a certificate indicating that a test was performed within 6 months before the transfer 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.
- B. Any source in storage and not being used need not be tested. When the source is removed from storage for use or transfer to another persons, it shall be tested before use or transfer.
- C. The 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, the source shall be removed from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. A 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, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, ATTN: Chief, Nuclear Materials Safety and Safeguards Branch. 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 microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.
- D. 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.

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20. 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 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. Applications dated August 14, 1979, September 6, 1984 and May 28, 1985;
- B. Letters dated September 20, 1979, September 6, 1984, May 24, 1985, February 4, 1986, March 26, 1986, July 17, 1986 and June 10, 1987; and
- C. Model ALARA Program contained in Appendix O of Regulatory Guide 10.8, October, 1980.

Condition 21. is added:

21. The training described for irradiator operators in letter dated June 10, 1987 shall be 8 hours long and include actual experience operating the irradiator. Records shall be kept of each person's training.

For the U.S. Nuclear Regulatory Commission

Date August 6, 1987

Original Signed  
By Evelyn R. Matson  
Materials Licensing Section, Region III

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