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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

October 30, 1996

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

License No.: 48-00268-02 Priority: 5 Category: F

Licensee: Beloit College
Department of Physics
and Astronomy
700 College Avenue
Beloit, WI 53511

Initial Contact Made: September 30, 1995 (telephonically)

Reviewer: Marcia J. Pearson 10/30/96
Marcia J. Pearson, Nuclear Materials Date
Program Assistant, DNMS

RETIRED

Approved By: B. J. Holt 10/31/96
B. J. Holt, Chief Date
Nuclear Materials Licensing Branch

Inspection Summary

Inspection On: September 30, 1995
Areas Inspected: Review of license file to determine status of license.

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DETAILS

1. Persons Contacted

   David A. Dobson, Radiation Safety Officer

2. Source of Information

   License File.

3. Scope of Program

   License authorized various sealed sources for laboratory instruction of students; Plutonium for use in U. S. Nuclear Corp. howitzer for education and training; and any byproduct material activation products for student instruction involving irradiation experiments.

4. Status of Program

   License No. 48-00268-03 was issued on September 17, 1996, to reactivate program from expired status to active.

5. Conclusion

   Based on issuance of License No. 48-00268-03, this license can be retired.

NRC FORM 374
(7-94)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

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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.

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Licensee	
1. Beloit College Department of Physics and Astronomy 2. 700 College Avenue Beloit, WI 53511	3. License Number 48-00268-03 4. Expiration Date September 30, 2001 5. Docket or Reference No. 030-34019

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. Cobalt-60	A. Sealed sources	A. 1 millicurie
B. Americium-241	B. Sealed source	B. 0.1 millicurie
C. Cesium-137	C. Sealed source (New England Nuclear Model No. NER-570)	C. 120 millicuries
D. Plutonium	D. Sealed source (Source No. N480E2)	D. 48 grams
E. Any byproduct material	E. Activation products	E. See Item 9.E. below

9. Authorized Use:

A. and B. Laboratory instruction of students.

C. To be used in NEN Model NER-400 N or custom designed source holder for laboratory instruction of students.

D. To be used in U.S. Nuclear Corp. Model NR-2-M3 Howitzer for education and training.

E. Possession incident to the performance of irradiation experiments utilizing the Pu-Be source. To be used for student instruction.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 700 College Street, Department of Physics and Astronomy, Beloit, Wisconsin.

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11. The Radiation Safety Officer for this license is David A. Dobson, Ph.D.

12. Licensed material shall be used by, or under the supervision of, David A. Dobson, Ph.D., or J. Patrick Polley, Ph.D.

13. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

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 3 months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Sealed sources need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) 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.

E. The leak 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, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), 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 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.

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F. 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.

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

15. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.

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

17. 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.

18. 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. Application dated November 27, 1995 (excluding leak testing procedures); and

B. Letters dated November 27, 1995, July 10, 1995 (excluding sections A.3., D.1. and D.2.) and August 14, 1996.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date September 17, 1996

By Colleen C. Casey
Nuclear Materials Licensing Branch, Region III

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