

## MATERIALS LICENSE

Amendment No. 86

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.

302181

## Licensee

1. The Ohio State University  
Office of Environmental and  
Occupational Health and Safety  
2. Room 210  
1314 Kinnear Road  
Columbus, OH 43212-1168

In accordance with letter dated  
December 20, 1996  
3. License Number 34-00293-02 is amended  
in its entirety to read as follows:

4. Expiration Date June 30, 2002

5. Docket or  
Reference No. 030-02640

6. Byproduct, Source, and/or  
Special Nuclear Material7. Chemical and/or Physical  
Form8. Maximum Amount that Licensee  
May Possess at Any One Time  
Under This License

A. Any byproduct  
material identified  
in 10 CFR 35.100

A. Any  
radiopharma-  
ceutical identi-  
fied in 10 CFR  
35.100

A. As needed

B. Any byproduct  
material identified  
in 10 CFR 35.200

B. Any  
radiopharma-  
ceutical identi-  
fied in 10 CFR  
35.200

B. As needed

C. Any byproduct  
material identified  
in 10 CFR 35.300

C. Any  
radiopharma-  
ceutical identi-  
fied in 10 CFR  
35.300

C. As needed

D. Any byproduct  
material identified  
in 10 CFR 35.400

D. Any brachytherapy  
sources identified  
in 10 CFR 35.400

D. 10 curies

E. Any byproduct  
material identified  
in 10 CFR 35.500

E. Any diagnostic  
source identified  
in 10 CFR 35.500

E. 5 curies

F. Iridium-192

F. Sealed sources  
(By K Mallinckrodt  
Model CILBV)

F. 2 sources; 1 source  
not to exceed 12  
curies, and 1 source  
not to exceed 10  
curies

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and/or special nuclear  
material7. Chemical and/or  
physical form8. Maximum amount that  
licensee may possess  
at any one time  
under this licenseG. Any byproduct  
material with Atomic  
Numbers between 1  
through 83; except  
as specified below:

G. Any

G. 10 curies of each  
radionuclide with  
total possession  
limit of 400 curies;  
except as listed  
below:

Bismuth-210	2 Ci
Cadmium-113	0.1 Ci
Cerium-144	1 Ci
Chlorine-36	1 Ci
Europium-152	1 Ci
Europium-154	1 Ci
Hafnium-172	1 Ci
Holmium-166m	1 Ci
Lead-210	0.5 Ci
Niobium-94	1 Ci
Ruthenium-106	1 Ci
Titanium-44	1 Ci
Zirconium-93	1 Ci

H. Hydrogen-3

H. Any

H. 100 curies

I. Carbon-14

I. Any

I. 100 curies

J. Iodine-131

J. Any

J. 0.5 curies

K. Iodine-125

K. Any

K. 3.5 curies

L. Phosphorus-32

L. Any

L. 5 curies

M. Strontium-90

M. Any

M. 500 millicuries

N. Iodine-129

N. Any

N. 10 millicuries

O. Cobalt-60

O. Sealed source  
(M. W. Kellogg  
Type II)

O. 5 curies

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under this license

P. Hydrogen-3

P. Sealed sources in  
electron capture  
detectors (registered  
pursuant to Section  
32.210 of 10 CFR  
Part 32 or an  
Agreement State)

P. 10 curies

Q. Hydrogen-3

Q. Sealed sources of  
scandium, titanium  
or zirconium tritide  
(registered pursuant  
to Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)

Q. 80 curies

R. Nickel-63

R. Sealed sources in  
electron capture  
detectors (registered  
pursuant to Section  
32.210 of 10 CFR  
Part 32 or an  
Agreement State)

R. 5 curies

S. Krypton-85

S. Sealed source  
(registered  
pursuant to Section  
32.210 of 10 CFR  
Part 32 or an  
Agreement State)

S. 1.5 curies

T. Iodine-125

T. Sealed sources  
(registered  
pursuant to Section  
32.210 of 10 CFR  
Part 32 or an  
Agreement State)

T. 3.5 curies

U. Iodine-131

U. Sealed sources  
(registered pursuant  
to Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)

U. 0.5 curies

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V. Cesium-137

V. Sealed source  
(M. W. Kellogg  
Type II)

V. 44 curies

W. Cesium-137

W. Sealed source  
(Accuray Model  
S-17)

W. 10 millicuries

X. Cesium-137

X. Sealed source  
(Victoreen Model  
28-6A)

X. 1.2 curies

Y. Cesium-137

Y. Sealed sources  
(registered  
pursuant to Section  
32.210 of 10 CFR  
Part 32 or an  
Agreement State)Y. No single source  
to exceed 11  
millicuries

Z. Americium-241

Z. Sealed sources  
(registered  
pursuant to  
Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)Z. No single source  
to exceed 330  
millicuries

AA. Polonium-210

AA. Any

AA. 10 millicuries

BB. Neptunium-237

BB. Any

BB. 10 millicuries

CC. Americium-241

CC. Any

CC. 10 millicuries

DD. Thorium

DD. Any

DD. Not to exceed 6.8  
kilograms at any  
one time. Total  
possession per  
calendar year not  
to exceed 67.50  
kilograms

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and/or special nuclear  
material7. Chemical and/or  
physical form8. Maximum amount that  
licensee may possess  
at any one time  
under this licenseEE. Uranium (Natural  
and/or depleted in  
Uranium-235)

EE. Any

EE. Not to exceed 6.8  
kilograms at any  
one time. Total  
possession per  
calendar year not  
to exceed 67.50  
kilograms

FF. Plutonium-239

FF. Electroplated  
sources

FF. 1 millicurie

GG. Uranium (Depleted  
in Uranium-235)

GG. Cadmium plated

GG. 322 kilograms

HH. Polonium-210

HH. Sealed sources  
(registered pursuant  
to Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)HH. No single source  
to exceed 100  
millicuries.  
Total possession  
not to exceed  
1 curie

II. Americium-241

II. Sealed sources  
(registered pursuant  
to Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)II. 3 sources not  
to exceed 500  
millicuries and  
1 source not  
to exceed 600  
millicuries.  
Total possession  
not to exceed  
2 curies

JJ. Californium-252

JJ. Sealed sources  
(registered pursuant  
to Section 32.210 of  
10 CFR Part 32 or an  
Agreement State)

JJ. 1 millicurie

KK. Any byproduct  
material between  
Atomic Numbers  
3 through 83,  
inclusiveKK. Neutron-Irradiated  
metal

KK. 150 curies

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physical form8. Maximum amount that  
licensee may possess  
at any one time  
under this license

LL. Uranium-235

LL. Any

LL. 10 microcuries

MM. Strontium-90

MM. Sealed source  
(Isotope Products  
Model SK 236 or  
Amersham Model  
SIF-DI)MM. 3 sources not  
to exceed 125  
millicuries each

NN. Curium-244

NN. Sealed source  
(Isotope Products  
Model SK 237 or  
AFR 244)  
CA4065 1585NN. 2 sources not  
to exceed 0.5  
millicuries each

OO. Uranium-238

OO. Constituents in  
soil samples

OO. 20 milligrams

PP. Uranium-235

PP. Constituents in  
soil samples

PP. 1.0 milligram

QQ. Americium-241

QQ. Sealed source  
(Nuclear Material  
Equipment Corporation  
Serial No. 16AM13)

QQ. 50 millicuries

RR. Americium-241

RR. Sealed source  
(NEN, IE DuPont)RR. One source not  
to exceed 30  
millicuries

9. Authorized Use:

- A. Any uptake, dilution and excretion procedure approved in 10 CFR 35.100.
- B. Any imaging and localization procedure approved in 10 CFR 35.200.
- C. Any radiopharmaceutical therapy procedure approved in 10 CFR 35.300.
- D. Any brachytherapy procedure approved in 10 CFR 35.400.
- E. Medical use of sealed sources included in 10 CFR 35.500 in compatible devices registered pursuant to 10 CFR 30.32(g).

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- F. One source to be used in a Nucletron Corporation MicroSelectron-HDR remote afterloading brachytherapy unit for interstitial, intracavitary and bronchial radiotherapy. One source in its shipping container to be in the possession of the licensee as necessary for the replacement of the source in the afterloading unit only. The source activity may not exceed 10 curies at the time of installation.
- G. through O. and S. through V. Research and development as defined in Section 30.4 of 10 CFR Part 30. Instrument calibration and student instruction.
- P., Q., and R. For use in analytical instruments (e.g., gas chromatographs) registered pursuant to Section 32.210 of 10 CFR Part 32 or an Agreement State.
- W. and X. For calibration of the licensee's survey meters.
- Y. and Z. For possession and use in Troxler and Campbell Pacific Nuclear gauges which have been evaluated and approved for licensing purposes and authorized for distribution under a license issued by the U.S. Nuclear Regulatory Commission or an Agreement State. To be used for moisture/density measurements.
- AA. through CC. For research and development as defined in Section 30.4 of 10 CFR Part 30.
- DD. through EE. For research and development as defined in Section 30.4 of 10 CFR Part 30 and student instruction.
- FF. For use as calibration sources.
- GG. To be used as shielding in two linear accelerators.
- HH. through KK. For research and development as defined in Section 30.4 of 10 CFR Part 30. For Subitems HH. through JJ., authorization includes non-NRC and non-Agreement State sources received by the licensee prior to the date of issuance of this license.
- LL. To be used as calibration standards for mass spectroscopy.
- MM. and NN. For use in custom-device Daybreak soil irradiator for research and development limited to the irradiation of fine sediments. The Daybreak soil irradiator device, together with its sealed sources, may be transferred, on a one-time only basis, to the University of Illinois at Chicago, an Agreement State licensee. This transfer may take place upon the issuance of an amendment to the byproduct materials license held by the University of Illinois at Chicago that permits the possession and use of the Daybreak soil irradiator device and its sealed sources, in accordance with the licensee's statements, representations and procedures contained in letters dated July 17, 1996, July 26, 1996 and August 27, 1996.

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00. and PP. For research use in the development of a process to immobilize soluble uranium compounds that exist within uranium-contaminated soil samples from FERMCO in Fernald, Ohio. Upon completion of the research studies, the soil samples, including uranium constituents, may be returned to FERMCO for disposal.
- QQ. For research and development as defined in Section 30.4 of 10 CFR Part 30.
- RR. To be stored in a J.L. Shepherd Model 28-3 storage shield and to be used for calibration of radiation detection instruments.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at The Ohio State University, Columbus, Ohio, and at the Accelerator Section, Biophysics Branch, Aerospace Medical Laboratory, Wright Patterson AFB, Dayton, Ohio. Licensed material listed in Subitems Y. and Z. may also be used and stored at the Piketon Research and Extension Center, 1864 Shyville Road, Piketon, Ohio and may be used at temporary job sites of the licensee throughout the State of Ohio.
11. The Radiation Safety Officer for this license is Robert E. Peterson.
12. A. The use of licensed material in or on humans shall be by a physician, dentist, or podiatrist as defined in 10 CFR 35.2.
- B. Physicians, dentists, or podiatrists designated to use licensed material in or on humans shall meet the training criteria established in 10 CFR 35, Subpart J and shall be designated by the licensee's Radiation Safety Committee. The licensee shall maintain records of individuals designated as users for three years after the individual's last use of licensed material.
- C. Licensed material for other than human use shall be used by or under the supervision of individuals designated by the Radiation Safety Committee, Dr. Ralph Stevens, Chairperson or Dr. Michael Darby (effective July 1, 1996). The licensee shall maintain records of individuals designated as users.
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.

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- 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. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- E. 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.
- F. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. 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 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, 801 Warrenville Road, Lisle, Illinois 60532-4351, ATTN: Chief, Nuclear Materials Safety 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.
- G. 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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14. Pursuant to 10 CFR Part 40, "Domestic Licensing of Source Material," the licensee is authorized to possess, use, transfer, and import up to 999 kilograms of depleted uranium contained as shielding material.
15. The licensee shall conduct a physical inventory every 3-months to account for all sources and/or devices received and possessed pursuant to 10 CFR 35.59, 10 CFR 35.400 and 10 CFR 35.500 and every 6 months for all other sealed and unsealed sources and/or devices. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the information required in 10 CFR 35.59(g).
16. 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 by the manufacturer and approved by U.S. Nuclear Regulatory Commission.  
B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.
17. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
18. The licensee is authorized to hold radioactive material with a physical half-life of less than 90 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. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate 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.
  - C. Generator columns shall be segregated so that they may be monitored separately to ensure decay to background levels prior to disposal.
  - D. 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.
  - E. Radioactive waste being held for decay shall not be stored for a period greater than 4 years.

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19. Radioactive waste awaiting disposal via shipment to a final disposal site shall not be stored for a period greater than 2 years.
20. Waste currently possessed exceeding the storage provisions of Conditions 19.E., and 20 shall be disposed of within one year of the issuance of this license.
21. The licensee shall not use licensed material in or on human beings except as provided otherwise by specific condition of this license.
22. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
23. 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 U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.
24. 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."
25. The licensee shall maintain records of information related to decommissioning at the Ohio State University, Columbus, Ohio, as specified in 10 CFR 30.35(g) until this license is terminated by the Commission.
26.
  - A. Access to the rooms housing the MicroSelectron-HDR afterloading brachytherapy unit shall be controlled by a door at each entrance.
  - B. The entrance to the irradiation room shall be equipped with an electrical interlock system that will cause the source to return to the shielded position immediately upon opening of the entrance door. The interlock system shall be connected in such a manner that the source cannot be placed in the irradiation position until the entrance door is closed and the source "on-off" control is reset at the control panel.
  - C. Electrical interlocks on the entrance door to the irradiator room shall be tested for proper operation at least once a month. Records of test results shall be maintained for inspection by the Commission.
  - D. In the event of malfunction of the door interlock, the irradiation device shall be locked in the "off" position and not used, except as may be necessary for repair or replacement of the interlock system, until the interlock system is shown to be functioning properly.
27. Prior to initiation of a treatment program, and subsequent to each source exchange for the MicroSelectron-HDR afterloading brachytherapy units, radiation surveys and tests shall be performed in accordance with the following:

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A. A radiation survey shall be made of:

- (i) The irradiator source housing, with the source in the shielded position. The maximum radiation levels at 100 centimeters from the surface of the main source safe shall not exceed 0.25 milliroentgens per hour.
- (ii) All areas adjacent to the treatment room with the source in the "irradiation" position. The survey shall clearly establish:
  - (a) That radiation levels in restricted areas are not likely to cause personnel exposure in excess of the limits specified in 10 CFR 20.1201.
  - (b) That quantities of radiation in unrestricted areas do not exceed the limits specified in 10 CFR 20.1301.

B. Records of the survey results shall be maintained for inspection by the Commission.

28. In lieu of 10 CFR 35.404(a), immediately after retracting the source from the patient into its shielded position in the remote afterloading device, a radiation survey shall be made of the patient and the remote afterloading device with a portable radiation detection survey instrument to confirm that the source has been removed from the patient. Records of the survey shall be maintained in lieu of the record required in 10 CFR 35.404(b).

29. In lieu of the source inventory required in 10 CFR 35.406, the licensee shall:

- A. Promptly determine that all sources have returned to the safe, shielded position at the conclusion of each remote afterloading brachytherapy procedure.
- B. Promptly make a survey of the area of use to confirm that no sources have been misplaced.
- C. Make a record of the survey including the survey instrument used, dose rate expressed in mrem/hr ( $\mu$ Sieverts/hr), time, date and name of the individual making the survey.
- D. Retain the record of the survey in lieu of the record required in 10 CFR 35.406(d).

30. The following shall be performed only by persons specifically authorized by the Commission or an Agreement State to perform such services:

- A. Installation and replacement of the sealed sources contained in the MicroSelectron-HDR afterloading brachytherapy unit(s).

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- B. Any maintenance or repair operations on the MicroSelectron-HDR afterloading brachytherapy unit(s) listed in Item 9., Subitem LL. involving work on the source safe, the source driving unit, or other mechanism that could expose the source, reduce the shielding around the source, or compromise the safety of the unit and result in increased radiation levels.
31. Licensed material listed in Subitems Y. and Z. shall only be used by, or under the supervision and in the physical presence of, individuals who have successfully completed the manufacturer's training program for gauge users, have been instructed in the licensee's routine and emergency operating procedures and who have been designated by the Radiation Safety Committee. The licensee shall maintain records of individuals designed as users and their training for five years following the last use of licensed material by the individual.
  32. Each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage or when not under the direct surveillance of an authorized user.
  33. When performing tests at temporary job sites, the authorized user shall not leave the moisture/density gauge unattended. Upon completion of tests the device shall be locked in the licensee's vehicle or a secure building to prevent unauthorized use, loss, or theft.
  34. The licensee shall conduct a physical inventory every 6 months to account for all sources in Subitems Y. and Z. received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the quantities and kinds of byproduct material, manufacturer's name and model numbers, location of the sources and the date of the inventory.
  35. Notwithstanding the provisions of 10 CFR 30.35(c)(2), the licensee shall submit a decommissioning funding plan on or before April 15, 1994.
  36. 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.
  37. The licensee shall perform stack effluent sampling when the estimated aggregate release of all radionuclides through a fume hood exceeds 50 percent MPC, averaged over one month.
  38. The licensee shall implement their Stack Effluent Sampling Program within 90 days of the date of this license.
  39. The licensee shall implement their Radiation Safety Officer Audit Program within 180 days of the date of this license.

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40. As an exemption from Section 35.40 (a), 10 CFR Part 35, the licensee may release patients from the medical institution while undergoing therapy with the Collaborative Ocular Melanoma Study Brachytherapy Plaques as described in letter dated March 5, 1992.
41. 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, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. 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 July 29, 1986, and February 21, 1991; and
- B. Letters dated March 7, 1988, November 3, 1988, December 16, 1988, February 24, 1989, May 17, 1989, June 9, 1989, December 11, 1991, May 29, 1992 (excluding last paragraph on page 6), March 5, 1992, August 7, 1992, September 11, 1992, November 24, 1992 and December 1, 1992, December 16, 1992 (with attachments), February 16, 1994, August 23, 1994 (with attachment), August 29, 1994, May 26, 1995 (terminating September 30, 1995), July 26, 1995, August 29, 1995, July 11, 1995, November 3, 1995 (excluding Item 2), March 19, 1996, July 1, 1996 (excluding requested change to License Condition No. 15), July 17, 1996, July 26, 1996, August 27, 1996, September 12, 1996, and letter dated January 14, 1997.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date

Jan 27, 1997

By

[Signature]  
Nuclear Materials Licensing Branch, Region III

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(FOR LFMS USE)  
INFORMATION FROM LTS

BETWEEN:

License Fee Management Branch, ARM  
and  
Regional Licensing Sections

Program Code: 02110  
Status Code: 0  
Fee Category: 7C EX 3L 1D 2C 3E 2B  
Exp. Date: 20020630  
Fee Comments: 170.11(A)(4)  
Decon Fin Assur Req'd: Y

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: OHIO STATE UNIVERSITY (THE)  
Received Date: 961231  
Docket No: 3002640  
Control No.: 302181  
License No.: 34-00293-02  
Action Type: Amendment

2. FEE ATTACHED

Amount: -----  
Check No.: Ø

3. COMMENTS

Signed  
Date

D. Hersey  
2-97

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone is entered /\_\_/) **FEE EXEMPT**

1. Fee Category and Amount: 7C EX 3L 3E 2C 2B 1D

2. Correct Fee Paid. Application may be processed for:

Amendment ✓  
Renewal  
License

3. OTHER

Signed  
Date

SC  
1/6/97

JAN 15 1997

Log	<u>Jan 4 III</u>
Remitter	-----
Check No.	-----
Amount	-----
Fee Category	<u>7C EX 3L 3E 2C 2B 1D</u>
Type of Fee	<u>Amd</u>
Date Check Rec'd	-----
Date Completed	<u>1/6/97</u>
By:	<u>SC</u>

1997 JAN -6 AM 9:46



Office of Environmental  
Health and Safety

1314 Kinnear Road, Room 210  
Columbus, OH 43212-1168  
Phone 614-292-1284  
FAX 614-292-6404

December 20, 1996

Mr. Kevin Null  
US Nuclear Regulatory Commission, Region III  
Nuclear Materials Licensing Branch  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Subject: Application for Amendment to License Number: 34-00293-02

Dear Mr. Null:

The Ohio State University is requesting a license amendment to add the following sealed source to the University's 34-00293-02 license:

<b>Material:</b>	Americium-241
<b>Physical Form:</b>	Special Form
<b>Manufacturer:</b>	J.L. Shepherd & Associates
<b>Model Number:</b>	492-M
<b>Serial Number:</b>	Unknown
<b>Activity:</b>	30 mCi (NIST Traceable)
<b>Use:</b>	Will be use to calibrate survey meters that detect low energy gamma x-ray emitters

Please note this source has not been purchased by the University. We are requesting for a quick review and approval of this license amendment.

No fee is enclosed with this application for amendment as The Ohio State University is a nonprofit educational institution.

Please direct any technical questions or requests for additional information to Mr. Robert Peterson, University Radiation Safety Officer, at (614) 292-1284.

Thank you.

*Cecil R. Smith*  
Sincerely,

Cecil R. Smith, Dr.P.H.  
Assistant Vice President  
Environmental Health and Safety

cc: R.E. Peterson  
RS Files

170.11(A)(4)  
**FEE EXEMPT**

*pm: 12-27-96*

**RECEIVED**  
**DEC 31 1996**  
**REGION III**  
*302181*  
**DEC 31 1996**

JAN 28 1997

Robert E. Peterson  
Radiation Safety Officer  
The Ohio State University  
Office of Environmental and  
Occupational Health and  
Safety, Room 201  
1314 Kinnear Road  
Columbus, OH 43212-1168

Dear Mr. Peterson:

Enclosed is Amendment No. 86 to your NRC Material License No. 34-00293-02 in accordance with your request.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office at (630) 829-9887 so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Notify NRC, in writing, within 30 days:
  - a. When the Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or
  - b. When the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).
3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license when you decide to terminate all activities involving materials authorized under the license.
4. Request and obtain a license amendment before you:

302181



- b. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;
  - c. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or
  - d. Change ownership of your organization.
5. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By  
Evelyn R. Matson  
Nuclear Materials Licensing Branch

License No.: 34-00293-02  
Docket No.: 030-02640

Enclosure: Amendment No. 86

DOCUMENT NAME: M:\03002640.CL7

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	DNMS/RIII <i>MM</i>	<input checked="" type="checkbox"/>							
NAME	EMATSON:jaw								
DATE	01/97								

OFFICIAL RECORD COPY



UNITED STATES NUCLEAR REGULATORY COMMISSION  
REGION III  
CONVERSATION RECORD

(X) TELEPHONE (X) OUTGOING ( ) INCOMING ( ) CONVERSATION

TIME: 8am

DATE: 1/14/97

NAME OF PERSON(S) CONTACTED:

ORGANIZATION

TELEPHONE NO.:

Andrew Karam  
Ohio State University  
34-00293-02

SUBJECT:

Amendment request  
control no. 302181  
Letter dated December 20, 1997

SUMMARY:

The NRC needs that following additional information:

1. Specify the manufacturer and model no. For the am-241 sealed source.
2. Specify the model no. For the calibration device. The sealed source and device certification USACA-0598-D-123-S does not authorize Am-241 in model 492-M.

ACTION REQUIRED:

Please respond in writing within 15 days, provide two copies of your response and refer to Control No. 302181.

ACTION TAKEN

NAME OF PERSON DOCUMENTING CONVERSATION

SIGNATURE

DATE

Evelyn R. Matson  
630-829-9822

1/14/97



1/14/97

Office of Environmental  
Health and Safety

1314 Kinnear Road, Room 210  
Columbus, OH 43212-1168

Phone 614-292-1284  
FAX 614-292-6404

Ms. Evelyn Mattson  
U.S. Nuclear Regulatory Commission, Region III  
801 Warrensville Road  
Lisle, IL 60532-4351

Dear Ms. Mattson:

**RE: Mail Control #302181 ( $^{241}\text{Am}$  sealed source)**

In response to our telephone conversation earlier today I can furnish the following information:

The source in question is an NIST-traceable 30 mCi  $^{241}\text{Am}$  source manufactured by New England Nuclear (now E.I. DuPont), model number LE55B. The source capsule is considered to be special form material.

The source will be housed for shielding purposes in a J.L. Shepherd & Associates model 28-3 storage shield. This is neither intended nor will be used as a device and will only be used to house the source when it is not in use. If the NRC objects to using the model 28-3 as a storage shield, the Ohio State University will place the source in a lead pig when not in use. We feel, however, that the Model 28-3 will provide better shielding for the source when not in use, in keeping with the principle and philosophy of ALARA.

We are greatly looking forward to receiving this source as it will permit us to properly calibrate our radiation detection instruments used for monitoring the use of low-energy gamma emitters such as  $^{125}\text{I}$ . If you have any further questions regarding this source or our intended use of it, please feel free to contact me at your convenience.

Sincerely,

Andrew Karam, CHP  
Health Physicist,  
The Ohio State University

RECEIVED  
JAN 23 1997  
REGION III

JAN 23 1997



Office of Environmental  
Health and Safety

1314 Kinnear Road, Room 210  
Columbus, OH 43212-1168

Phone 614-292-1284

FAX 614-292-6404

FAX TRANSMITTAL FORM

TO:

Evelyn Mattson   
NAME

630-515-1259   
FAX NUMBER

Counseling   
DEPARTMENT/FIRM

JOB NAME

1/14/97   
DATE

FROM:

Andrew Kersin CH7   
NAME

614 292-7002   
FAX NUMBER

(614) 292-1284   
Telephone Number

2   
No. of Pages  
(INCLUDING TRANSMITTAL FORM)

Original to Follow: (Y) N

MESSAGE:



Office of Environmental  
Health and Safety

1814 Kinnear Road, Room 210  
Columbus, OH 43212-1168

Phone 614-292-1284  
FAX 614-292-6404

1/14/97

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Sincerely,

Andrew Karam, CHP  
Health Physicist,  
The Ohio State University



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

January 3, 1997

Robert E. Peterson  
Radiation Safety Officer  
The Ohio State University  
Office of Environmental & Occupational  
Health & Safety/Room 210  
1314 Kinnear Road  
Columbus, OH 43212-1168

SUBJECT: ACKNOWLEDGEMENT OF CORRESPONDENCE  
(Letter Dated 12/20/96)

Dear Licensee:

In response to your request, we have completed the initial processing, which is an administrative review of your application for a(n):

☐ New License                      ☒ Amendment                      ☐ Renewal  
☐ Termination                      ☐ Auth User (Amendment not required)  
☐ Other \_\_\_\_\_

No administrative deficiencies were identified during this initial review. However, it should be noted that a technical review may identify omissions in the submitted information.

It appears that your request is routine (see 1-3 below, as applicable).

1. New and amendment actions are normally processed within 90 days, unless we find major deficiencies, or policy issues requiring central program office assistance.
2. Renewal actions are normally processed within 180 days, however, under timely filing (before expiration), you may continue to operate under your existing license.
3. Termination actions are normally processed within 90 days, unless confirmatory surveys following decontamination/decommissioning activities are involved.

A copy of your correspondence has been forwarded to our Licensing Fee and Debt Collection Branch (301/415-6097) for approval of the fee category and amount, if required.

If you have a compelling safety or business-related reason for requesting expedited review, please contact the Materials Licensing Branch at (630) 829-9887. We will try to complete your request as soon as practicable. Any correspondence about this request should reference the control number.

Nuclear Materials Support Branch

Mail Control No. 302181  
License No. 34-00293-02