



DL-021497\_01

# COMMONWEALTH of VIRGINIA

*Department of Emergency Services*

A. E. SLAYTON JR.  
State Coordinator

MICHAEL M. COLE  
Deputy Coordinator

February 14, 1997

510 Turner Road  
Richmond, Virginia 23225-6491  
804-674-2496  
TDD: 674-2417  
FAX: 604-674-2490

Mr. Earl G. Wright  
Senior License Reviewer  
Division of Nuclear Materials Safety  
U. S. Nuclear Regulatory Commission Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323-0199

Dear Mr. Wright:

In accordance with instructions received from your office in a letter dated August 20, 1996, you will find those documents necessary for the termination of our agency's NRC license (No. 45-12314-02) enclosed with this letter.

With regard to Item B.2 on Form 314, Attachment 3 consists of contamination swipe test results obtained prior to transferring licensed material, and thus shall serve as the radiation survey required by that item.

In addition, you will find documentation of record disposition as instructed. Please note that Attachment 3 of Item B.2 on Form 314 will serve as those records transferred to your agency as indicated in Block 2 of the document regarding records disposition.

Please proceed with license termination immediately.

Thank you for your assistance with this process. If you should have any questions, please contact me at (804) 674-2413.

Sincerely,

L. Ralph Jones, Jr.  
Director, Technological Hazards Division

LRJr/BEI/bgm

Enclosures

2014 17



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30333-0199

# TELEFAX

TO: Brian Iverson License # 45-12314-02

Attn: Comm. of VA Title: \_\_\_\_\_

FAX: (804) 674-2490 CITY \_\_\_\_\_, STATE \_\_\_\_\_

FROM: Diane Heim TITLE: \_\_\_\_\_  
DIVISION OF NUCLEAR MATERIALS SAFETY

DATE: 7/16/96

FAX: (404) 331-7437 VOICE: (404) 331-4673

## SUBJECT: YOUR REQUEST FOR TRANSFER OR TERMINATION OF NRC LICENSE

Please provide the following certification, in addition to the NRC FORM 314 (Certificate of Disposition of Materials):

All records important to the safe and effective decommissioning of the facility [10 CFR 30.35(g), 40.36(f), 70.25(g), and 72.30(d)]; and all records concerning public dose and waste disposal, have been transferred to:

1. Name: \_\_\_\_\_ [Successor]  
License # \_\_\_\_\_ Street: \_\_\_\_\_  
City: \_\_\_\_\_, State: \_\_\_\_\_

OR

2. USNRC, Attn: Nuclear Materials Licensing Section, at the above address,

AND

3. There is no residual contamination of the facility or environs from licensed materials.

Signature: Brian E. Iverson Date: Feb 13, 1997

Printed Name and Title: BRIAN E. IVERSON  
STATE RADIOLOGICAL OFFICER

(6-95)  
 10 CFR 30.36(c)(1)(i)(v)  
 10 CFR 40.42(c)(1)(i)(v)  
 10 CFR 70.38(c)(1)(i)(v)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST IS 30 MINUTES. THIS SUBMITTAL IS USED BY NRC AS PART OF THE BASIS FOR ITS DETERMINATION THAT THE FACILITY HAS BEEN CLEARED OF RADIOACTIVE MATERIAL BEFORE THE FACILITY IS RELEASED FOR UNRESTRICTED USE. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 P33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0028) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503. AN AGENCY MAY NOT CONDUCT OR SPONSOR, AND A PERSON IS NOT REQUIRED TO RESPOND TO A COLLECTION OF INFORMATION UNLESS IT DISPLAYS A CURRENTLY VALID OMB CONTROL NUMBER.

**CERTIFICATE OF DISPOSITION OF MATERIALS**

INSTRUCTIONS: ALL ITEMS MUST BE COMPLETED - PRINT OR TYPE  
 SEND THE COMPLETED CERTIFICATE TO THE NRC OFFICE SPECIFIED ON THE REVERSE

LICENSEE NAME AND ADDRESS

Commonwealth of Virginia  
 Department of Emergency Services  
 310 Turner Road  
 Richmond, VA 23225

LICENSE NUMBER

45-12314-02

LICENSE EXPIRATION DATE

September 30, 1998

**A. MATERIALS DATA (Check one and complete as necessary)**

THE LICENSEE OR ANY INDIVIDUAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE LICENSEE CERTIFIES THAT.  
 (Check and/or complete the appropriate item(s) below.)

- 1. NO MATERIALS HAVE EVER BEEN PROCURED OR POSSESSED BY THE LICENSEE UNDER THIS LICENSE.
- OR
- 2. ALL ACTIVITIES AUTHORIZED BY THE LICENSE HAVE CEASED AND ALL MATERIALS PROCURED AND/OR POSSESSED BY THE LICENSE NUMBER CITED ABOVE HAVE BEEN DISPOSED OF IN THE FOLLOWING MANNER. (If additional space is needed, use the reverse side or provide attachments.)

Describe specific material transfer actions and, if there were radioactive wastes generated in terminating this license, the disposal actions including the disposition of low level radioactive waste, mixed waste, Greater than-Class-C waste, and sealed sources, if applicable.

No applicable wastes were generated by the licensee.

For transfers, specify the date of the transfer, the name of the license recipient, and the recipient's NRC license number or Agreement State name and license number.

Items 6.A and 6.B were transferred to FEMA (see Attachment #1).  
 Item 6.C was transferred to University of Virginia (see Attachment #2).

If materials were disposed of directly by the licensee rather than transferred to another licensee, licensed disposal site or waste contractor, describe the specific disposal procedures (e.g., decay in storage).

No applicable materials were disposed of by the licensee.

**B. OTHER DATA**

- 1. OUR LICENSE HAS NOT YET EXPIRED; PLEASE TERMINATE IT.
- 2. A RADIATION SURVEY WAS CONDUCTED BY THE LICENSEE TO CONFIRM THE ABSENCE OF LICENSED RADIOACTIVE MATERIALS AND TO DETERMINE WHETHER ANY CONTAMINATION REMAINS ON THE PREMISES COVERED BY THE LICENSE. (Check one)
  - NO (Attach explanation)
  - YES. THE RESULTS (Check one)
    - ARE ATTACHED. (see Attachment #3)
    - WERE FORWARDED TO NRC ON        Date.

3. THE PERSON TO BE CONTACTED REGARDING THE INFORMATION PROVIDED ON THIS FORM

NAME

L. Ralph Jones, Jr.

TELEPHONE NUMBER  
 (Include Area Code)

(804) 674-2406

4. MAIL ALL FUTURE CORRESPONDENCE REGARDING THIS LICENSE TO

L. Ralph Jones, Jr.  
 310 Turner Road  
 Richmond, VA 23225

20-137

**CERTIFYING OFFICIAL**

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

L. Ralph Jones, Jr.  
 Director, Technological Hazards Div.

SIGNATURE

DATE

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMITTALS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

Attachment #3

LABORATORY ANALYSIS DATA SHEET

pre-disposal contamination  
wipe tests of sources  
constitutes record of  
radiation survey as  
required in item B.2  
on Form 314 to  
terminate license

Smear Samples

Date of Collection: 1/30/97 Date R  
Date Analysis Completed: 1/30/97  
Collection Location: Beltwood Defense Gene  
calibrator room  
City: Richmond County: \_\_\_\_\_  
Collected by: Jim deKrafft  
Remarks: \_\_\_\_\_

ALPHA AND BETA ANALYSIS

Source	Identification	CPM	Beta	Blk.	Net CPM	µCi
<u>(S-13)</u>	<u>J. L. Sheppard</u>					
	<u>calibrator</u>					
<u>200 mCi</u>	<u>Serial # 10280</u>					
<u>12/94</u>	<u>model 28-5A</u>					
	<u>Smear # 1</u>		<u>1.7</u>	<u>1.6</u>	<u>0.1</u>	<u>&lt;0.005</u>
	<u>sides of source</u>					
	<u>housing</u>					
	<u>Smear # 2</u>		<u>1.0</u>	<u>1.6</u>	<u>-</u>	<u>&lt;0.005</u>
	<u>top &amp; bottom</u>					
	<u>of source</u>					
	<u>housing</u>					

Date Counted: 1/30/97 Counting Time: 10 min.

Counting Instrument: Canberra model 2404 gas  
flow proportional counter

Analyst: JIM deKrafft

VIRGINIA DEPARTMENT OF HEALTH  
BUREAU OF RADIOLOGICAL HEALTH  
1500 EAST MAIN STREET  
P. O. BOX 2448, ROOM 104A  
RICHMOND, VA 23218

**LABORATORY ANALYSIS DATA SHEET**

Sneez Samples

Date of Collection: 5/3/96 Date Received: 5/3/96  
 Date Analysis Completed: 5/3/96  
 Collection Location: Bellwood Defense General Supply Center  
DES Calibration Facility  
 City: Richmond County: \_\_\_\_\_  
 Collected by: deKrafft  
 Remarks: \_\_\_\_\_

**ALPHA AND BETA ANALYSIS**

Source	Identification	CPM	Alpha Beta	Bkg.	Net CPM	pCi
<u>CS-137</u>	<u>J.L. Shepherd + Associates</u>					
	<u>200 mCi 12/94</u>					
	<u>model 28-5A</u>					
	<u>Calibrator</u>					
	<u>Serial # 10230</u>					
<u>#1</u>	<u>housing</u>	<u>1.2</u>		<u>1.5</u>	<u>-</u>	<u>&lt;0.005</u>
<u>#2</u>	<u>source rod</u>	<u>1.2</u>		<u>1.5</u>	<u>-</u>	<u>&lt;0.005</u>
<u>CS-137</u>	<u>Technical Operations Inc.</u>					
	<u>Radiological Instru. calibrator</u>					
	<u>130 Ci</u>					
	<u>CDV-794 model 2</u>					
	<u>Serial # 014</u>					
<u>#3</u>	<u>operator panel</u>	<u>1.4</u>		<u>1.5</u>		<u>&lt;0.005</u>
<u>#4</u>	<u>calibrator housing</u>	<u>1.4</u>		<u>1.5</u>		<u>&lt;0.005</u>

Date Counted: 5/3/96 Counting Time: 10 min.

Counting Instrument: Canberra model 2401 was proportional counting system

Analyst: Allgood

50.137



UNIVERSITY OF VIRGINIA  
OFFICE OF ENVIRONMENTAL HEALTH



Phone (804) 982-4911  
FAX (804) 982-4921

Mr. Brian Iverson  
State Surplus  
310 Turner Road  
Richmond VA 23225

December:

Attachment #2  
documents disposal  
of source 6.C on  
license as required  
on Form 314 to  
terminate license

Re: Shepherd Irradiator

*Brian*  
Dear Mr. Iverson:

I write to confirm our earlier conversations regarding the above captioned subject. We have agreed to the following:

1. The University of Virginia will accept title to the Shepherd Irradiator that you currently have in your possession. This irradiator contains approximately 200 mCi of Cs-137. You will also provide us with the owner's manual, attenuators and other accessories that you have on hand.
2. The irradiator will be provided to the University at no charge.
3. You will package the irradiator for shipping. You will use either the original shipping package or a suitable alternative.
4. You will prepare shipping papers. If you need assistance in this, please call my office and help will be provided.
5. The University will transport the irradiator from Richmond to Charlottesville in an appropriate vehicle.
6. You will provide, at the time of pick-up for transport, the results from a recent set of contamination swipes.

I have enclosed a copy of the University of Virginia's USNRC license. Condition A5, on page 2 of 11, is the appropriate reference for this irradiator.

Thanks for your good work in helping this happen. If you have any questions, please call me at 804-982-4916. Or, you may call Debby Steva at 804-982-4917.

Very truly yours,

*Richard G. Piccolo*  
Richard G. Piccolo, CHP  
Radiation Safety Officer

DEC 19 1994

VDSF

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Corrected Copy

MATERIALS LICENSE

Amendment No. 106

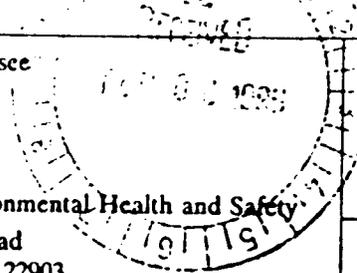
Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, 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 receive 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.

RECEIVED  
FEB 07 1990

Licensee

By \_\_\_\_\_

1. University of Virginia  
Rector and Visitors  
ATTN: Office of Environmental Health and Safety
2. Box 3425, Edgemont Road  
Charlottesville, Virginia 22903



In accordance with application dated March 26, 1993

3. License Number 45-00034-26

is received in its entirety to read as follows:

4. Expiration Date May 31, 2000

5. Docket or Reference No. 030-03296

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. Any byproduct material with atomic numbers 3 through 84, inclusive except as listed below

A. Any

A. No single nuclide to exceed 1 curie (37 GBq) of each nuclide with atomic numbers 3-83 inclusive with a total possession limit of 25 curies (925 GBq) except as listed below (See also Condition No. 34)

B. Any byproduct material with atomic numbers 85 through 98, inclusive, with half lives less than 120 days, except as listed below

B. Any

B. See Condition No. 34

C. Hydrogen 3

C. Any

C. 10 curies (370 GBq)

D. Carbon 14

D. Any

D. 4 curies (148 GBq)

E. Phosphorus 32

E. Any

E. 5 curies (185 GBq)

F. Sulfur 35

F. Any

F. 5 curies (185 GBq)

G. Cobalt 60

G. Sealed sources

G. 2 curies (74 GBq)

H. Molybdenum 99

H. Mo-99/Tc-99m generators

H. 6 curies (222 GBq)

I. Iodine 125

I. Any

I. 2 curies (74 GBq)

J. Iodine 129

J. Sealed sources

J. 10 millicuries (370 MBq)

K. Cesium 137

K. Sealed brachytherapy sources

K. 3 curies (111 GBq)

L. Gadolinium 153

L. Sealed sources

L. 5 curies (185 GBq)

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

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ITEMS 6, 7, AND 8 CONTINUED

M.	Iridium 192	M.	Sealed sources	M.	2 curies (74 GBq)
N.	Cesium 137	N.	Sealed sources in irradiator device	N.	1200 curies (44.4 TBq)
O.	Sodium 22	O.	Any	O.	10 millicuries (370 MBq)
P.	Chlorine 36	P.	Any	P.	10 millicuries (370 MBq)
Q.	Manganese 54	Q.	Any	Q.	10 millicuries (370 MBq)
R.(1)	Iron 55	R.(1)	Sealed source(s)	R.(1)	100 millicuries (3.7 GBq)
(2)	Iron 55	(2)	Any	(2)	100 millicuries (3.7 GBq)
S.	Cobalt 58	S.	Any	S.	10 millicuries (370 MBq)
T.	Cobalt 60	T.	Any	T.	5 millicuries (175 MBq)
U.(1)	Nickel 63	U.(1)	Sealed, foil and/or plated sources	U.(1)	100 millicuries (3.7 GBq)
(2)	Nickel 63	(2)	Any	(2)	30 millicuries (1.1 GBq)
V.	Zinc 65	V.	Any	V.	10 millicuries (370 MBq)
W.	Krypton 85	W.	Any	W.	100 millicuries (3.7 TBq)
X.	Strontium 90	X.	Any	X.	100 microcuries (3.7 MBq)
Y.	Cadmium 109	Y.	Any	Y.	10 millicuries (370 MBq)
Z.	Silver 110m	Z.	Any	Z.	1 millicurie (37 MBq)
A1.	Antimony 124	A1.	Sealed neutron sources	A1.	60 curies (2.22 TBq)
A2.	Iodine 129	A2.	Any	A2.	100 microcuries (3.7 MBq)
A3.	Barium 133	A3.	Any	A3.	10 millicuries (370 MBq)
A4.	Cesium 137	A4.	Any	A4.	30 millicuries (1.11 GBq)
A5.	Cesium 137	A5.	Sealed sources	A5.	300 millicuries (11.1 GBq)
A6.	Gadolinium 153	A6.	Any	A6.	10 millicuries (370 MBq)

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

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ITEMS 6, 7, AND 8 CONTINUED

A7. Thallium 204	A7. Any	A7. 10 millicuries (370 MBq)
A8. Polonium 210	A8. Any	A8. 100 microcuries (3.7 MBq)
A9. Uranium 235	A9. Foils and/or disk sources	A9. 149 grams
A10. Plutonium 239	A10. Sealed neutron sources	A10. 160 grams (370 GBq)
A11. Plutonium 239	A11. Sealed in neutron dosimeters and air monitors	A11. 10 micrograms
A12. Plutonium 239	A12. Any	A12. 10 microcuries (370 kBq)
A13. Americium 241	A13. Sealed sources	A13. 300 millicuries (11.1 GBq)
A14. Californium 249	A14. Sealed sources	A14. 200 nanocuries (7.4 MBq)
A15. Californium 252	A15. Sealed sources	A15. 100 microcuries (3.7 MBq)
A16. Mixed Fission Products	A16. Corrosion in shipping casks	A16. 2 curies (74 GBq)
A17. Uranium	A17. Natural uranium in any form	A17. 50 kilograms
A18. Cesium 137	A18. Sealed sources in gamma irradiator	A18. 400 curies (14.8 TBq)
A19. Cesium 137	A19. Sealed sources in gamma irradiator	A19. 4000 curies (148 TBq)
A20. Uranium	A20. Contained depleted uranium metal	A20. 999 kilograms
A21. Iridium 192	A21. Sealed sources registered pursuant to 10 CFR 32.210 or an equivalent Agreement State regulation	A21. Two sources, no single source to exceed 12 curies
A22. Uranium	A22. Depleted uranium metal, mock up of fuel element	A22. 45 kilograms

9. Authorized Use:

A. through M. Medical research, diagnosis and therapy. Research and development as defined in 10 CFR 30.4.

N. For use in AECL Gammacell 1000, Model B self contained irradiator for irradiating biological samples, human blood and blood products for introduction in human subjects and other materials except for explosives and food for human consumption.

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9. Authorized Use (cont.):

O. through A17. Research and development as defined in 10 CFR 30.4.

A18. For use in Radiation Machinery Corporation Gammator Model B self contained irradiator for irradiation of biological samples and other materials except for explosives and food for human consumption.

A19. For use in AECL Gammacell Model 40 self contained irradiator for irradiation of small animals, biological samples and other materials except for explosives and food for human consumption.

A20. For use as shielding material in storage containers and exposure devices.

A21. One sealed source for use in a compatible Isotopen-Technik Model GammaMed 12i remote afterloading brachytherapy irradiator (Registry No.: NR 726-D-101-S) for treatment of cancer patients, non-human research, training of personnel, performance of radiation safety and quality control procedures; and, one source for storage in its shipping container, incident to source replacement.

A22. Storage only.

A. through A20. Any standard source authorized by this license may be used for calibration of radiation detection equipment. (See also Condition No. 18)

**CONDITIONS**

10. Licensed material shall be used only at facilities owned, operated or leased by the University of Virginia and located at Charlottesville, Virginia, Albemarle County Virginia and may be used at these temporary locations: (1) For portable moisture/density gauges anywhere in the United States where the U.S. Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material; (2) For any licensed material identified in Subitem 6A, not exceeding 1 millicurie per nuclide and 20 millicuries total at the University of Virginia's Mountain Lake Biological Station, Giles County, Virginia; and (3) For hydrogen 3, Carbon 14, and sulfur 35 for uptake studies throughout the State of Virginia.

A. Prior to use of licensed material at a temporary job site, the licensee shall obtain written permission from the property owner.

B. The licensee shall not vacate or release to unrestricted use a field office or storage location whose address is identified in Condition 10, without prior NRC written approval. Reports of residual levels of contamination or other information concerning facility status may be required.

C. The HDR device identified in Subitem No. 9.A21 shall be used only at the University of Virginia Hospital West, Division of Radiation Oncology, Main Floor, Room B-961A, Jefferson Park Avenue, Charlottesville, Virginia.

11. A. The Radiation Safety Officer (RSO) for this license is Richard G. Piccolo or in his absence, James R. Gilchrist, Alternate RSO.

B. The medical physicist for this license shall meet the training and experience criteria specified in 10 CFR 35.961 and be designated in writing by the licensee's Radiation Safety Committee.

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## CONDITIONS

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, Ralph O. Allen, Chairman.
- C. Licensed material for other than human use shall be used by or under the supervision of individuals designated by the Radiation Safety Committee, Ralph O. Allen, Chairman.
13. A. 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 Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.
- B. Sealed sources or detector cells containing licensed material shall not be opened by the licensee.
- C. The licensee shall conduct a physical inventory every three 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 six months for all other sources and/or devices.
14. Sealed sources and detector cells possessed under this license shall be tested in accordance with the provisions of this condition. In addition, the licensee (UVA) may collect and analyze leak test samples from sealed sources and detector cells for customers. The licensee (UVA) shall provide its customers with documentation and reports of results as may be necessary to meet appropriate regulatory and licensing requirements.
- 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 six 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

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**CONDITIONS**

14.(cont.)

(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 II ATTN: Chief, Nuclear Materials Inspection Section, 101 Marietta Street, N.W. Suite 2900, Atlanta, GA 30323. The report shall specify the source involved, the test results, and corrective action taken.

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.

15. 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."

16. The licensee (UVA) may calibrate radiation detection equipment for customers, as a non-profit community service, provided that it also furnishes the customer with documentation and reports as may be necessary to meet the customer's regulatory and licensing requirements.

17. Maintenance, repair, cleaning, replacement and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the Commission or an Agreement State to perform such services.

18. 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.

19. Any cleaning, maintenance, or repair of the gauge(s) that requires removal of the source rod shall be performed only by the manufacturer or by other persons specifically licensed by the Commission or an Agreement State to perform such services.

20. 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 NRC.

B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.

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Amendment No. 106

**CONDITIONS**

Continued

21. The licensee shall not perform repairs or alterations of the irradiator involving removal of shielding or access to the licensed material. Removal, replacement, and disposal of sealed sources in the irradiator shall be performed by a person specifically licensed by the Commission or an Agreement State to perform such services.
22. The licensee shall make available and require the use of the irradiator manufacturer's written instruction manual by each person using or having responsibility for the safe use of irradiator devices authorized by this license.
23. This license does not authorize the intentional release of licensed material to the environment, except as permitted under 10 CFR 20, Appendix B.
24. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
25. This license does not authorize commercial distribution of licensed material. However, as a community service, the licensee may transfer licensed material to other specific licensees in accordance with the terms and conditions of this license and the receiving license.
26. Experimental animals, or the products from experimental animals, that have been administered licensed materials shall not be used for human consumption.
27. The licensee shall possess and use byproduct material for human research in accordance with the prescriptive and performance criteria in all sections of 10 CFR Part 35 except sections 35.49(a) and (b), 35.100, 35.200, and 35.300.
28. Notwithstanding the requirements of 10 CFR 35.49(a) and (b), 10 CFR 35.100, 10 CFR 35.200, 10 CFR 35.300, 10 CFR 35.400 and 10 CFR 35.500 the licensee may use for any medical use any byproduct material or reagent kit. The licensee shall possess and use byproduct material for medical use in accordance with the prescriptive and performance criteria in the other sections of 10 CFR 35. This does not relieve the licensee from complying with applicable United States Food and Drug Administration (FDA) and other Federal and State requirements.
29. The licensee shall elute generators and process radioactive material with reagent kits in accordance with instructions furnished by the manufacturer on the label attached to or in the leaflet or brochure that accompanies the generator or reagent kit.
30. A. Radiopharmaceuticals transferred to other licensees for human use shall be either:
  - (i) Repackaged from prepared radiopharmaceuticals that are the subject of an FDA-approved "New Drug Application" (NDA) or for which FDA has accepted a "Notice of Claimed Investigational Exemption for a New Drug" (IND); or
  - (ii) Prepared from generators and reagent kits that are the subject of an FDA-approved NDA or for which FDA has accepted an IND.

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- 30.(cont.)
- B. Prepared radiopharmaceuticals for which FDA has accepted an IND and radiopharmaceuticals prepared from generators or reagent kits for which FDA has accepted an IND shall be dispensed and/or distributed:
- (i) In accordance with the directions provided by the sponsor of the IND; and
  - (ii) Only to physicians who have been accepted by the sponsor of the IND to participate in clinical evaluation of the drug.
31. Medical use of eye plaque brachytherapy implants for treatment of cancer.
- A. Notwithstanding the requirements of 10 CFR 35.404(a), the licensee may release from confinement for medical care a patient with a temporary eye implant in place, provided that: (1) the survey requirements for permanent implant patients specified in 10 CFR 35.75(b) are met; (2) and a non-hardening bonding agent is used between the insert and the metal shield for all temporary eye plaques, to enhance plaque integrity and prevent seed loss. Upon removal of the eye plaque, the licensee shall make a radiation survey of the patient with a radiation detection survey instrument to confirm that all sources have been removed. This survey must include disassembling the plaque to conduct a physical inventory of the seeds. The licensee shall retain a record of the patient survey in accordance with 10 CFR 35.404(b).
  - B. Notwithstanding the requirements of 10 CFR 35.406(a), after removal of each eye plaque, the patient may be released from the medical treatment facility after an inventory of the sources in each eye plaque is performed to confirm recovery of all sources.
  - C. Notwithstanding the temporary nature of each eye plaque implant, the licensee shall meet the requirements of 10 CFR 35.415(a)(5).
32. 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.
33. The licensee shall maintain records of information related to decommissioning at the licensee's address specified in item 2 above as specified in 10 CFR 30.35(g), 40.36(f) and/or 70.25(g) until this license is terminated by the Commission.
34. In addition to the possession limits in Condition 8, the licensee shall further restrict the possession of unsealed licensed material to quantities less than  $10^5$  times the applicable limits in Appendix B of 10 CFR Part 30, or 100 mCi of readily dispersible source material as specified in 10 CFR 30.35(d), or 70.25(d) or 40.36(b) respectively. The sum of the ratios for all unsealed radionuclides possessed under the license shall not exceed 100.
35. In addition to the provisions of 10 CFR 35.92 which authorizes disposal by decay-in-storage of medical waste, the licensee may also hold for decay-in-storage waste generated in non-medical research and contaminated with licensed material with a physical half-life of less than 120 days provided that:
- A. Radioactive waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.

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35.(cont.)

- 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. 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 of, 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.

- 36 Pursuant to 10 CFR 20.1301, 20.1302 and 20.2002, the licensee is authorized to dispose of licensed material by incineration provided the gaseous effluent from incineration does not exceed the limits specified for air in Appendix B, Table II, 10 CFR Part 20. All ash residue generated from incineration of licensed material shall be treated as radioactive waste and shall be disposed of only in accordance with the provisions of 10 CFR 20.2002 or as otherwise specifically authorized by this license.

## CONDITION NUMBERS 37 THROUGH 42 ARE APPLICABLE ONLY TO HDR DEVICE(S)

37. Prior to initiation of a treatment program, and subsequent to each source exchange for each high dose rate remote afterloading brachytherapy unit, a radiation survey shall be made of:
- A. The source housing, with the source in the shielded position. The maximum radiation levels at 10 centimeters from the surface of the main source safe shall not exceed 1 millirem per hour.
- B. All areas adjacent to the treatment room with the source in the "irradiation" position. The survey shall clearly establish:
- (1) That radiation doses to occupationally exposed individuals do not exceed the limits specified in 10 CFR 20.1201(a), 20.1207 and 20.1208.
  - (2) That radiation doses to individual members of the public do not exceed the limits specified in 10 CFR 20.1301(a).
38. 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).
39. 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.

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**CONDITIONS**

39.(cont.)

- C. Make a record of the survey including the survey instrument used, dose rate expressed in mrem/hr or ( $\mu$ 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).

40. The following shall be performed only by manufacturer's representatives or 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 afterloading brachytherapy device(s).
- B. Any maintenance or repair operations on the remote afterloading brachytherapy unit(s) listed in Item 9, Subitem(s) A21 involving work on the source safe, the source drive 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.

41. A high dose rate afterloading brachytherapy unit shall be used in accordance with the following conditions:

- A. The unit may only be used in a permanently shielded treatment room.
- B. During all patient treatments, both the authorized user and either the medical physicist or radiation safety officer must be physically present. (See Condition 11.) Physical presence, for this purpose, is defined as within audible range of normal human speech.
- C. The licensee shall have and post in the vicinity of the treatment console, written emergency procedures describing the actions to be taken, including surgical intervention, should the source not return to the shielded container at the conclusion of treatment. The licensee shall not begin any treatment procedure for which a decoupled or jammed source cannot be removed expeditiously from the patient and placed in a shielded condition.
- D. The licensee shall ensure that personnel are trained in both the routine use of the unit and emergency procedures necessary to return the source to a safe position.
- E. The licensee shall immediately, after implanting the source, visually check the permanently installed room radiation monitor to verify that it indicates an exposed radiation source.
- F. The licensee shall visually monitor the patient during treatment through a continuous observation system.
- G. The licensee shall permit no visitors in the treatment room.

42. A. Access to the rooms housing the HDR afterloading brachytherapy device shall be controlled by a door at each entrance.

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42.(cont.)

- 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 each day of use.
- 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.

43. 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:

- (1) March 26, 1993 as revised by letter dated May 6, 1994 and enclosures thereto.

B. Letters dated:

- (1) May 6, 1994 [Revised application]
- (2) August 30, 1994 [Revised application for HDR device originally submitted December 9, 1992]
- (3) November 18, 1994 [with enclosed revisions to application for renewal of license]
- (4) December 13, 1994 [FAX with copy of RDRC No. 11 for UVA]
- (5) December 19, 1994 [FAX with RSO certification dated 12/13/94]
- (6) January 25, 1995 [Additional information about radiation safety procedures]
- (7) January 27, 1995 [Additional information about radiation safety procedures]
- (8) March 8, 1995 [Procedures for frequency of laboratory audits]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

EARL G. WRIGHT

DATE 188 0 1 1996

BY

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