NRC Form 374
(3-83)

U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 01

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). 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. University of Oklahoma Health Sciences Center	In accordance with letter dated January 29, 1985
2. P. O. Box 26901 Oklahoma City, Oklahoma 73190	3. License number: 35-03176-06 is amended in its entirety to read as follows:
	4. Expiration date: November 30, 1987
	5. Docket or Reference No.: 030-19258

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. Teletherapy sealed sources (Picker Corporation Model P-3802A)	A. 1,570 curies (2 sources of not more than 785 curies each)

9. Authorized use

A. One source to be used in a Keleket-Barnes Floorstand teletherapy unit for teaching and training of students and for irradiation of biological specimens or inanimate objects (excluding explosives and highly flammable materials). One source in its shipping container to be in possession of the licensee as necessary for the replacement of the source in the teletherapy unit only.

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CONDITIONS

10. Licensed material shall be used only in Room 49, College of Health, University of Oklahoma, 801 NE 13th Street, Oklahoma City, Oklahoma.

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, Carol Ann Sullivan, Lana Andrews or other individuals approved by the University's Radiation Safety Committee.

13. A. Teletherapy sources shall be tested for leakage at intervals not to exceed 6 months. Records of test results shall be kept in units of microcuries and maintained for inspection by the Commission. In the absence of a certificate from a transferor indicating that a test has been made within 6 months prior to the transfer, a source received from another person shall not be used until tested for leakage.

B. The test shall be sufficiently sensitive to detect 0.05 microcurie of contamination on the test sample.

C. The test sample shall be taken from selected accessible surfaces of the teletherapy head. The selected accessible surfaces should be those surfaces on which one might expect contamination (if there were to be leakage) to accumulate and shall include the inner surface of the most frequently used treatment cones or beam collimating device. The test sample shall be taken with the source in the "off" position.

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13. (continued)

D. If the test reveals the presence of 0.05 microcurie or more of removable contamination, the licensee shall promptly take action to prevent spread of contamination and shall file a report 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 test results and the corrective action taken.

14. Prior to initiation of a training or irradiation program, each teletherapy unit shall be equipped with electrical or mechanical stops limiting use of the primary beam of radiation so as to ensure compliance with Section 20.105(b), Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards for Protection Against Radiation," as evidenced by a radiation survey. Necessary use restrictions shall be fully described in radiation survey reports submitted in accordance with Condition No. 17.

15. A set of written emergency instructions shall be posted at the teletherapy machine control. These instructions shall inform the machine operator of the procedure to be followed should he be unable to turn the machine's primary beam of radiation "off" with the controls outside the treatment room.

16. A. Access to the teletherapy room shall be controlled by a door at each entrance. Such doors shall be normally closed.

B. Each entrance to the teletherapy room shall be equipped with an electrical interlock system that will turn the teletherapy machine's primary beam of radiation "off" immediately upon opening of any entrance door. The interlock system shall be connected in such a manner that the teletherapy machine's primary beam of radiation cannot be turned "on" until all treatment room entrance doors are closed and the beam "on-off" control is reset at the control panel.

16. (continued)

C. Electrical interlocks on entrance doors to the teletherapy room shall be tested for proper operation at least once every 6 months. Records of test results shall be maintained for inspection by the Commission.

D. In the event of malfunction of any door interlock, the teletherapy machine control shall be locked in the "off" condition 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.

17. Prior to initiation of a training or irradiation program, and subsequent to each installation of a teletherapy source, radiation surveys and tests shall be performed in accordance with the following:

A. A radiation survey shall be made of:

(1) The teletherapy source housing, with the teletherapy source in the "off" position. The maximum and average radiation levels at one meter from the teletherapy source in the "off" position shall not exceed 10 milliroentgens per hour and 2 milliroentgens per hour, respectively.

(2) All areas adjacent to the treatment room with the teletherapy source in the "on" position. The survey, except Item c., shall be performed with a phantom in the primary beam of radiation and shall clearly establish:

a. That radiation levels in restricted areas are not likely to cause personnel exposure in excess of the limits specified in Section 20.101, Title 10, Part 20, Code of Federal Regulations, Chapter 1, "Standards for Protection Against Radiation" (10 CFR 20).

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17. (continued)

b. That quantities of radiation in unrestricted areas do not exceed the limits specified in Section 20.105(b), 10 CFR 20.

c. The intensity of the primary beam of radiation at a specified distance from the teletherapy source.

B. Tests shall be made to determine proper operation of:

(1) Electrical interlocks on entrance doors to the teletherapy treatment room.

(2) The teletherapy source "on-off" indicators, both at the source housing and on the teletherapy machine control panel.

(3) Electrical or mechanical stops installed for the purpose of limiting using of the primary beam of radiation (restriction of source housing angulation or elevation, carriage or stand travel and operation of the beam "on-off" mechanism).

(4) The teletherapy treatment timing device.

C. A report of the results of the above surveys and tests shall be sent in duplicate to the U. S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Dr., Suite 1000, Arlington, Texas 76011, not later than 30 days following each installation of a teletherapy source.

18. A. Any changes made in facility shielding, location of the unit within the room, or use of the teletherapy unit that could result in increased radiation levels in areas outside the teletherapy room shall be evaluated by a radiation survey made in accordance with Condition 17., and reported to the Commission within 30 days following completion of the change(s).

B. Relocation of the teletherapy unit to a new facility is not permitted without prior approval of the plans and details by the Commission. Following such approval and relocation, a radiation survey shall be made in accordance with Condition 17., and reported to the Commission within 30 days after completion of the move.

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

A. Installation, relocation, or removal of teletherapy units containing sources.

B. Source exchange.

C. Any maintenance or repair operations on a teletherapy unit involving work on the source drawer, the shutter, or other mechanism that could expose the source, reduce the shielding around the souce, or compromise the safety of the unit and result in increased radiation levels.

20. A. Pursuant to Section 20.105(a) of Title 10, Chapter 1, Code of Federal Regulations, Part 20, "Standards for Protection Against Radiation," and in reliance of statements, procedures, and representations made by the licensee in his letter dated April 2, 1985, the following maximum radiation levels are hereby authorized in the following unrestricted areas:

Maximum Radiation Level	Unrestricted Area
5 milliroentgens per hour	Area K outside the north wall
3 milliroentgens per hour	Area H on roof of facility

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B. The licensee shall maintain detailed records of the use of the teletherapy unit to justify assumptions about the workload of the unit (i.e., 3 hours of use per week for 30 weeks per year) and to demonstrate compliance with Section 20.105(a) of 10 CFR Part 20.

21. 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:

Letter with application and other enclosures dated March 16, 1981
Letter with enclosures dated February 24, 1982
Letter dated September 21, 1982
Letter with enclosures dated January 29, 1985
Letter with enclosures dated April 2, 1985

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
C. L. Cain

Date APR 16 1985

By _____

Nuclear Materials Safety Section
Region IV
Arlington, Texas 76011

Official Record Copy

MC40

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NRC FORM 218 (4-76) NRCM 0240

U.S. NUCLEAR REGULATORY COMMISSION

DATE 4/10/85

TELEPHONE OR VERBAL CONVERSATION RECORD

TIME 2 ☐ A.M. ☑ P.M.

☐ INCOMING CALL ☑ OUTGOING CALL ☐ VISIT

PERSON CALLING	OFFICE/ADDRESS	PHONE NUMBER / EXTENSION
Cain		

PERSON CALLED	OFFICE/ADDRESS	PHONE NUMBER / EXTENSION
Dr. Ahluwalia	U of Ok.	405 - 271 - 6121

CONVERSATION

SUBJECT

SUMMARY

Licensee confirmed that Room 70 will be properly posted per 20.203.

Also discussed unrestricted area exemption on basis of

$$4.8 \frac{mR}{h} \cdot \frac{3 h}{week} \text{ (usage)} \cdot \frac{30 \text{ weeks}}{year} = 432 \text{ mR/y}$$

REFERRED TO: 35-03175-06

ACTION REQUESTED

☐ ADVISE ME OF ACTION TAKEN.

INITIALS

DATE

ACTION TAKEN

INITIALS

DATE

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