FORM AEC-374
(3-73)
10 CFR 30

U.S. ATOMIC ENERGY COMMI[illegible]N
BYPRODUCT MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, and Title 10, Code of Federal Regulations, Chapter 1, Parts 30 and 35, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess, transfer and import byproduct material listed below; and to use such byproduct material for the purpose(s) and at the place(s) designated below. 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 Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. G. A. Doehner, M. D.	3. License number 29-06760-07
2. 303 Main Street Freehold, New Jersey 07728	4. Expiration date August 31, 1978
	5. Reference No.

6. Byproduct material (element and mass number)	7. Chemical and/or physical form	8. Maximum amount of radioactivity which licensee may possess at any one time
A. Cobalt 60	A. Teletherapy sealed sources Picker Corp. Model P3800A	A. 3200 curies (2 sources of not more than 1600 curies each)

9. Authorized use

A. One source to be used in a Picker Corporation Model 6103 teletherapy unit for the treatment of humans. One source in its shipping container to be in possession of the licensee as necessary to the replacement of the source in the teletherapy unit only.

CONDITIONS

10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.

11. The licensee shall comply with the provisions of Title 10, Chapter 1, Code of Federal Regulations, Part 20, "Standards for Protection Against Radiation."

12. Byproduct material shall be used by, or under the supervision of, G. A. Doehner, M. D.

13. The teletherapy facility shall be provided with a system permitting continuous observation of the patient from outside the treatment room, during patient irradiation.

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14. A. Teletherapy sources shall be tested for leakage at intervals not to exceed six 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 six months prior to the transfer, the source 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.

    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 five days of the test with the Materials Branch, Directorate of Licensing, U.S. Atomic Energy Commission, Washington, D.C. 20545, describing the test results and the corrective action taken. A copy of such report shall also be sent to the Director of the appropriate Atomic Energy Commission Regional Office, Directorate of Regulatory Operations listed in Appendix D of 10 CFR 20.

15. Prior to initiation of a treatment program, each teletherapy unit shall be equipped with electrical or mechanical stops limiting use of the primary beam of radiation so as to assure compliance with Section 20.105(b) of 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. 18.

16. A written instruction shall be posted at the teletherapy machine control. This instruction 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. These instructions shall caution individuals to avoid exposure to the primary beam of radiation when in the treatment room and shall include specific instructions for:

    A. Locating and using the device for manually turning off the teletherapy unit's primary beam of radiation.

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16. B. Removing the patient from the treatment room.

    C. Securing the room against unauthorized entry.

    D. Notifying the responsible physician or radiation protection officer.

17. 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.

    C. Electrical interlocks on entrance doors to the teletherapy room shall be tested for proper operation at least once every six 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 to the repair or replacement of the interlock system, until the interlock system is shown to be functioning properly.

18. Prior to initiation of a treatment 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:

        (i) 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.

        (ii) 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:

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

(b) That quantities of radiation in unrestricted areas do not exceed the limits specified in Section 20.105(b) of 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:

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

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

(iii) Electrical or mechanical stops installed for the purpose of limiting use 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).

(iv) The teletherapy treatment timing device.

C. A report of the results of the above surveys and tests shall be sent (in triplicate) to the Materials Branch, Directorate of Licensing, U.S. Atomic Energy Commission, Washington, D.C., 20545, not later than thirty days following each installation of a teletherapy source. A copy of such report shall also be sent to the Director of the appropriate Atomic Energy Commission Regional Office, Directorate of Regulatory Operations listed in Appendix D of 10 CFR 20.

19. Any changes made in treatment room shielding, location, or use of the teletherapy machine which could result in an increase in radiation levels in unrestricted areas outside the teletherapy treatment room and made subsequent to the completion of the initial radiation survey performed in accordance with Condition No. 18, shall be evaluated by a radiation survey performed in accordance with Item A. (ii) of Condition No. 18. A report describing the change(s), and giving the results of the survey(s), shall be sent to the Materials Branch, Directorate of Licensing, U.S. Atomic Energy Commission, Washington, D.C., 20545, not later than thirty days following completion of the change(s). A copy of such report shall also be sent to the Director of the appropriate Atomic Energy Commission Regional Office, Directorate of Regulatory Operations listed in Appendix D of 10 CFR 20.

20. Each teletherapy machine shall be fully inspected and serviced during source replacement or at intervals not to exceed five (5) years, whichever comes first, to assure proper functioning of the source exposure mechanism. This inspection and servicing must be performed by persons specifically authorized to do so by the U.S. Atomic Energy Commission or an Agreement State and a report of the inspection and servicing must be kept on file for review by the Commission's Directorate of Regulatory Operations. [redacted]

For the U.S. Atomic Energy Commission

Original signed by
FRANK C. DAVIS

Date SEP 27 1973

by Materials Branch 4

Directorate of Licensing
Washington, D.C. 20545