RECORD #87

TITLE: Control of Radiation Levles in Unrestricted Areas ...

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

August 20, 1982

IE INFORMATION NOTICE NO. 82-33: CONTROL OF RADIATION LEVELS IN UNRESTRICTED AREAS ADJACENT TO BRACHYTHERAPY PATIENTS

Addressees:

All Medical Institutions.

Purpose:

During the course of several inspections NRC inspectors have found radiation levels exceeding regulatory limits in unrestricted areas adjacent to brachytherapy patients. This notice discusses the applicable regulatory limits and associated requirements. It is expected that recipients of this Information Notice will review the information for applicability to their facilities. No specific response to this notice is required.

Discussion:

Radiation levels in unrestricted areas may not exceed the limits as specified in 10 CFR 20.105(b)(1) and (2) unless the licensee has been granted an exemption by demonstrating at the time of applying for a license or amendment that the requirements of paragraph 20.105(a) will be met. This exemption must be stated as a specific condition of the license.

Treatment of patients with brachytherapy sources may result in a situation where the public may be exposed to unnecessary radiation. Insufficient distance between the restricted and unrestricted areas and a lack of shielding material in brachytherapy rooms has, in some cases, resulted in the existence of levels of radiation greater than the permissible limits specified in 10 CFR 20.105(b)(1) and (2). "Adjacent areas" may include adjacent rooms and hallways as well as areas on floors above and below the brachytherapy patient's room.

The regulations require that, unless an exemption under paragraph 20.105(a) has been granted, radiation levels may not exist in unrestricted areas so that, if an individual were continuously present in the area, it could result in that individual receiving a dose in excess of 2 millirem in any one hour or 100 millirem in any seven consecutive days. It is important to note that compliance must be established with both paragraph 20.105(b)(1) and (2). As an example, if a hospital treated a sufficient number of brachytherapy patients to maintain continuous occupancy in one room and radiation levels in adjacent unrestricted areas were greater than 0.6 millirem/hour, the facility would be in violation of paragraph 20.105(b)(2). Specifically, a situation would exist where an individual who continuously occupied the unrestricted area might receive more than 100 millirems in seven consecutive days.

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In establishing compliance with paragraph 20.105(b)(1) and (2), it is necessary to conduct a survey as required by paragraphs 20.201(a) and (b). An evaluation of the radiation hazard must be made that, if appropriate, would include measurements of the levels of radiation. In the event that radiation levels greater than permissible levels are encountered, action must be taken to reduce the level. Action might include increasing the distance between the patient and the unrestricted area or the use of portable shields. After employing such methods, a survey must again be performed to assure that radiation levels in adjacent areas are below the permissible limits. Records of these surveys must be maintained as required by paragraph 20.401(b).

No written response to this information notice is required. If you need additional information regarding this subject, you should contact the Regional Administrator of the appropriate regional office.

Fred J. Cobb, Director
Division of Fuel Facilities, Materials
and Safeguards, IE

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Attachment:
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