

APPENDIX I

DOSE TO MEMBERS OF THE PUBLIC

Radioactive Material Licensees are required to insure that no member of the public receives a radiation dose from sources under the control of the Licensee that exceeds the dose amounts referenced in the Rules and Regulations for Control of Sources of Ionizing Radiation, Paragraph RH-1208, "Dose Limits for Individual Members of the Public".

These limits are not to exceed:

- (1.) **Total Effective Dose Equivalent:** **100 millirem per year**
- (2.) **Dose in any unrestricted area:** **2 millirem in any one hour**

Paragraph RH-1209, "Compliance with Dose Limits for Individual Members of the Public" requires that the Licensee demonstrate compliance with the annual dose limit. Compliance may be demonstrated by performing and documenting surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas. Also, for areas adjacent to facilities where radioactive material is used or stored, calculations or a combination of calculations and measurements (e.g., using an environmental TLD) are often used to demonstrate compliance.

Licensees must perform the following:

- Insure that radioactive material will be used, transported, and stored in such a way that members of the public will not receive more than 100 mrem (1 mSv) in 1 year, and the dose in any unrestricted area will not exceed 2 mrem (0.02 mSv) in any one hour from licensed operations.
- Insure air emissions of radioactive materials to the environment will not result in exposures to individual members of the public in excess of 10 mrem (0.1 mSv) (TEDE) in one year from these emissions.
- Control and maintain constant surveillance of radioactive material that is not in storage and secure stored licensed material from unauthorized access, removal, or use.

Members of the public include persons who are not radiation workers. This includes workers who live, work or may be near locations where radioactive material is used or stored and employees whose assigned duties do not include the use of radioactive materials and who work in the vicinity where it is used or stored. Public dose is controlled, in part, by ensuring that radioactive material is secure (e.g., located in a locked area) to prevent unauthorized access or

use by individuals coming into the area. Some medical use devices containing radioactive material are usually restricted by controlling access to the keys needed to operate the devices and/or to keys to the locked storage area. Only Authorized Users and personnel using radioactive material under their supervision should have access to these keys.

Typical unrestricted areas may include offices, shops, laboratories, areas outside buildings, property, and nonradioactive equipment storage areas. The licensee does not control access to these areas for purposes of controlling exposure to radiation or radioactive materials; however, the licensee may control access to these areas for other reasons, such as security.

The definition of “public dose” in RH-1100 does not include doses received due to exposure to patients released in accordance with RH-8420. The provisions of RH-1208 should not be applied to radiation received by a member of the general public from patients released under RH-8420. If a patient is released pursuant to RH-8420, licensees are not required to limit the radiation dose to members of the public (e.g., visitor in a waiting room) from a patient to 2mrem (0.02mSv) in any one hour. Patient waiting rooms need only be controlled for those patients not meeting the release criteria in RH-8420.

Paragraph RH-1208.c. allows licensees to permit visitors to a patient who cannot be released under RH-8420 to receive a dose greater than 0.1 rem (1 mSv) provided the dose does not exceed 0.5 rem (5 mSv) and the authorized user has determined before the visit that it is appropriate.

In assessing adequacy of facilities to control public dose, licensees should consider the design factors discussed under “Facility Diagram” in Application Item 16 and may find confirmatory surveys to be useful in assuring compliance with RH-1208 and RH-1209.

The licensee must control emissions of radioactive material to air such that the individual member of the public likely to receive the highest total effective dose equivalent (TEDE) does not exceed the constraint level of 10 mrem (0.10 mSv) per year, specified in RH-1004, from those emissions. If exceeded, the licensee must report this in accordance with RH-1504, and take prompt actions to ensure against recurrence.