

Double Badge Advisory

I recently received a telephone call to the effect that a physician's film badge reading came back indicating a year-to-date exposure in excess of 4,700 mR. Since the maximum annual allowable exposure is 5,000 mR, the facility was wondering what to do.

First, please remember that you should not wait for someone to get anywhere near this exposure before contacting the physicist. Generally, the worst case exposures are the Cardiologists due in part to the close work they are doing and also in part to the large number of cases they perform. As a result of this, most radioactive materials licenses provide a quarterly limit for Cardiologists that is greater than for any other group.

All monthly / quarterly film badge reports need to be reviewed when they arrive. If anyone is over the limits established in your license, you should contact the physicist to discuss the issue. However, let's take the case where someone really does have a high year-to-date exposure. The attached excerpt from Radiation Safety Advisory 96-5 should be invoked.

This procedure provides for double-badging the person and explains how to calculate the exposure indicated by the two badges. As you can see, this method will bring down the whole body dose. However, it does not mean you can relax and not continue to track the person closely.

Excerpt Taken From Radiation Safety Advisory 96-5 dated December 26, 1996

3.2.2 When individual monitoring devices are worn, one under the protective apron at the waist and one outside the protective apron at the neck, the effective dose equivalent for external radiation (H_E) shall be assigned the value of the sum of the deep dose equivalent reported for the individual monitoring device located at the waist under the protective apron (H_W) multiplied by 1.5 and the deep dose equivalent reported for the individual monitoring device located at the neck outside the protective apron (H_N) multiplied by 0.04:

$$H_E = 1.5 H_W + 0.04 H_N$$

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Note:

When only one device is worn, outside the apron at the neck, the effective dose equivalent for external radiation (H_E) shall be assigned the value of the deep dose equivalent reported for the individual monitoring device located at the neck outside the protective apron (H_N) multiplied by 0.3:

$$H_E = 0.3 H_N$$