

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH RADIATION CONTROL PROGRAM

April 20, 1998

AGENCY INFORMATION NOTICE 98-01: DEMONSTRATION OF THE NEED TO PROVIDE MONITORING TO OCCUPATIONALLY EXPOSED PERSONS

Addressees

All radioactive material licensees

Purpose

The Radiation Control Program (the Agency) is issuing this information notice to provide guidance to licensees on criteria acceptable to the Agency staff that may be used by licensees to determine when personnel monitoring for regulatory compliance is required. It also discusses the reporting, recording and record keeping requirements associated with personnel monitoring.

It is expected that recipients will review the information for applicability to their facilities and consider appropriate actions. However, this information notice does not contain any new requirements; therefore, no specific action nor written response is required.

Description of Circumstances

During recent inspections of licensees, Agency inspectors have determined that personnel monitoring criteria are not being applied consistently.

Discussion

Monitoring of an individual's external radiation exposure is required by 105 CMR 120.226(A) if the external occupational dose is likely to exceed 10% of the dose limit appropriate for the individual (i.e., adult, minor, or declared pregnant woman). External radiation monitoring is also required by 105 CMR 120.226(A) (3) for any individual entering a high or very high radiation area.

Monitoring of the intake of radioactive material is required by 105 CMR 120.226 (B) if the intake is likely to exceed 0.1 ALI (annual limit on intake) during the year for an adult worker or the committed effective dose equivalent is likely to exceed 0.05 rem (0.5 mSv) for the occupationally exposed minor or declared pregnant woman.

105 CMR 120.211 establishes radiation dose limits for occupationally exposed adults. These limits apply to the sum of the dose received from external exposure and the dose from internally deposited radioactive material. In 105 CMR 120.211 (A) (1), the annual limits for adults are (i) 5 rems (0.05 Sv)

total effective dose equivalent or (ii) 50 rems (0.5 Sv) total organ dose equivalent to any single organ or tissue (other than the lens of the eye), whichever is more limiting. The occupational dose limits for minors in 105 CMR 120.217 are 10% of the dose limit for adults, and 105 CMR 120.218 establishes a dose limit for the embryo/fetus of 0.5 rem (0.005 Sv) during the entire pregnancy.

The “total effective dose equivalent” is defined as the sum of the “deep-dose equivalent” (for external exposures) and the committed effective dose equivalent” (for internal exposures) The total organ dose equivalent limit of 50 rems (0.5 Sv) specified in 105 CMR 120.211 (A) (1) (b) applies to the sum of the “deep-dose equivalent” and the “committed dose equivalent” to any individual organ or tissue. The requirements in 105 CMR 120.212 are for summing external and internal doses to determine compliance with the dose limits of 105 CMR 120.211.

The requirements for recording individual monitoring results are contained in 105 CMR 120.267. The requirements for reporting individual monitoring results are contained in 105 CMR 120.754.

Requirements.

Evaluation of Likely annual Occupational Dose

The first step in the process a licensee should take is to determine if an individual(s) is (are) likely to exceed 10% of a limit. This should be based on the potential occupational dose to the individual(s) for the year at the licensee*s facility. Doses that may have been received or will be received during the year from employment by another licensee are not included in the determination of monitoring requirements. The requirements in 105 CMR 120.226 refer to each licensee.

Evaluations of previous dosimetric (film badge or tld reports) or bioassay data may be considered in projecting doses. Surveys of dose rates and estimates of occupancy times may be used to estimate expected external doses. Measurements and predictions of airborne radionuclide concentrations and the expected duration of exposure may be used to predict radionuclide intakes. The potential for unlikely exposure and accident conditions need not be considered because these events, by definition, are not likely.

If a licensee determines, by a prospective evaluation, that an individual(s) are likely to exceed 10% of the appropriate limit, then monitoring for regulatory compliance is required. If monitoring for regulatory compliance is required, the licensee shall record the radiation dose in compliance with 105 CMR 120.267 and report the radiation dose to an individual(s) pursuant to 105 CMR 120.754(B).

Monitoring Performed But Not Required by 105 CMR 120.226

Individual monitoring may be conducted for reasons other than those noted in 105 CMR 120.226. For instance, workers may request that they be monitored for radiation exposure. A licensee determines that the individual is not likely to exceed 10% of the appropriate limit but provides monitoring to the individual. In this case, the licensee is not monitoring for regulatory compliance.

While the results of required monitoring are subject to the dose recording requirements of 105 CMR 120.267, and the reporting requirements of 105 CMR 120.754(B), the results of monitoring provided when not required by 105 CMR 120.226 are not subject to those dose recording and reporting requirements.

The following criteria will be used in the Agency inspection program:

A licensee who has made a prospective determination that workers in a particular Department are not likely to receive a radiation dose in excess of 10% of the appropriate limits from external sources is not required to provide individual monitoring devices under 105 CMR 120.226(A), nor is the licensee required to report the doses to workers under 105 CMR 120.754 (A) (4). A licensee who decides to monitor external radiation exposure for reasons other than compliance with 105 CMR 120.226(A) does not have to comply with 105 CMR 120.754 (A) (4).

A licensee who has made a prospective determination that workers in a particular Department are not likely to receive an intake of radioactive material in excess of 10% of the limits under 105 CMR 120.226(B) are not required to report the doses to workers under 105 CMR 120.754 (A) (4). A licensee who decides to monitor intake of radioactive material for reasons other than compliance with 105 CMR 120.226 (B) does not have to comply with 105 CMR 120.754 (A) (4)

No citation will be made against a licensee for failure to comply with 105 CMR 120.226 or 105 CMR 120.754 (A) (4) who, has made the determination that monitoring is not required as stated above and has documented this fact in the original license application or a subsequent amendment to the license, or is able to provide to an agency inspector documentation that adequately supports the evaluation that monitoring of external does is not needed.

A citation will not be made against a licensee who had indicated in the license application that external monitoring or internal monitoring will be provided, but who subsequently, without filing an amendment to the license has decided to stop complying with 105 CMR 120.226 or 105 CMR 120.754 (A) (4), if he is able to provide to an agency inspector documentation that adequately supports the evaluation that monitoring of external or internal doses is not needed.

This information notice requires no specific action or written response. If you have questions about the information in this notice, please contact the technical contact listed below.

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