

RECORD #3

TITLE: Exposure of Individuals to Concentrations of Radioactive  
Noble Gases In Restricted Area

FICHE: 68579-232

INTERPRETIVE GUIDE

SUBJECT: EXPOSURE OF INDIVIDUALS TO CONCENTRATIONS OF RADIOACTIVE NOBLE GASES IN RESTRICTED AREAS

A. PURPOSE AND BACKGROUND

To explain two separate methods licensees may use to determine exposures to individuals to noble gases.

B. APPLICABILITY

This guidance applies to exposures received internally (20.103) or externally (20.101) from noble gases and includes all noble gases except radon.

C. EXPLANATION

1. For noble gases, other than radon, the MPC's are based on the external dose that an individual would receive if he were surrounded by a semispherical infinite cloud of radioactive noble gas. The MPC's are derived by using a limit of 0.1 rem per week to the whole body, except for argon-37, for which a limit of 0.6 rem per week to the skin is used. Although the concentration limits for exposure to noble gases are contained in 20.103 with reference to Appendix B, the fact that noble gases, other than radon, present basically an external radiation hazard supports the position that exposure to noble gases be considered within the scope of 20.101. From the foregoing, licensees may evaluate exposures to individuals from noble gases, (except radon,) by either of two acceptable methods.
  - a. One method is by measuring concentrations of noble gases to which an individual is exposed and the times of exposure and relating these to the limits in Appendix B. If other airborne radioactive materials are present, the exposures must be limited as indicated in Note 1 to Appendix B of Part 20.
  - b. If the licensee uses external exposure as an alternative method, he may relate the total dose received from noble gases to the limits specified in 20.101. If other airborne radioactive materials are present, the exposures to these other materials must be limited pursuant to 20.103 and considered separately from the external doses due to noble gases.

c. If a licensee uses method a. above, it is acceptable for him to subtract from the total whole body doses from external radiation that portion attributable to exposures to noble gases; otherwise such exposures would be counted twice.

2. Licensees must use only one of the two alternate methods of evaluations of exposures to individuals to noble gases during any one calendar quarter.

D. COORDINATION

This guidance has the concurrence of OSD (J. Caplin).

E. REFERENCES

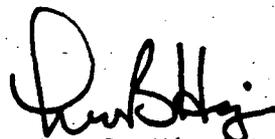
20.103, 20.101, ICRP Publication 2

F. SUPERSESSION

10 CFR 20.103 - Exposure of Individuals to Concentrations of Radioactive Material in Unrestricted Areas, dated, 12/22/70.

G. CONTACT

FFMSI contact; J. R. Metzger



Leo B. Higginbotham  
Assistant Director  
Division of Fuel Facility and  
Materials Safety Inspection

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