

3701:1-38-16 **Respiratory protection and controls to restrict internal exposure to radioactive material in a restricted area.**

- (A) To the extent practical, the licensee shall use process or other engineering controls, such as containment, decontamination or ventilation, to control the concentrations of radioactive material in air. When it is not practical to apply process or other engineering controls to control the concentrations of radioactive material in air to values below those that define an airborne radioactivity area, the licensee shall increase monitoring and limit intakes, consistent with maintaining the total effective dose equivalent ALARA, by one or more of the following means:
 - (1) Control of access;
 - (2) Limitation of exposure times;
 - (3) Use of respiratory protection equipment; or
 - (4) Other controls as determined by the director.
- (B) The licensee may consider safety factors other than radiological factors when determining whether to use respirators. The licensee should also consider the impact of respirator use on workers' industrial health and safety.
- (C) If the licensee uses respiratory protection equipment to limit the intake of radioactive material, the licensee shall:
 - (1) Use only respiratory protection equipment that is tested and certified by the national institute for occupational safety and health (NIOSH) and the mine safety and health administration (MSHA), except that the licensee may use equipment that has not been tested or certified by NIOSH and MSHA, or for which there is no schedule for testing or certification, provided that:
 - (a) The licensee has submitted and the director has approved an application for authorized use of that equipment; and
 - (b) The licensee has demonstrated by testing, or demonstrated on the basis of test information, that the material and performance characteristics of the equipment are capable of providing the appropriate proposed degree of protection under anticipated conditions of use;
 - (2) Implement and maintain a respiratory protection program that includes:
 - (a) Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate doses;
 - (b) Surveys and bioassays, as appropriate, to evaluate actual intakes;
 - (c) Testing whether each respirator is operable immediately prior to each use;
 - (d) Written procedures regarding the following:

- (i) Monitoring, including air sampling and bioassays;
 - (ii) Supervision and training of respirator users;
 - (iii) Fit testing;
 - (iv) Respirator selection;
 - (v) Breathing air quality;
 - (vi) Inventory and control;
 - (vii) Storage, issuance, maintenance, repair, testing, and quality assurance of respiratory protection equipment;
 - (viii) Recordkeeping; and
 - (ix) Limitations on periods of respirator use and relief from respirator use.
- (e) Determination by a physician that the individual user is medically fit to use the respiratory protection equipment:
- (i) Before the initial fitting of a face sealing respirator;
 - (ii) Before the first field use of non-face sealing respirators; and
 - (iii) Either every twelve months thereafter, or periodically at a frequency determined by a physician.
- (f) Fit testing, with fit factor greater than or equal to ten times the assigned protection factor (APF) for negative pressure devices, and a fit factor greater than or equal to five hundred for any positive pressure, continuous flow, and pressure-demand devices, before the first field use of tight-fitting, face-sealing respirators and periodically thereafter at a frequency not to exceed one year. Fit testing must be performed with the facepiece operating in the negative pressure mode.
- (3) Issue a written policy statement or procedure on respirator usage covering:
- (a) The use of process or other engineering controls, in lieu of respirators;
 - (b) The routine, nonroutine, and emergency use of respirators;
 - (c) The length of periods individuals may use a respirator; and
 - (d) Conditions for relief from respirator use.
- (4) Advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant

deterioration of operating conditions, or any other conditions that might require such relief.

- (5) The licensee shall also consider limitations appropriate to the type and mode of use. The licensee shall use respiratory protection equipment within the equipment manufacturer's expressed limitations for type and mode of use and shall provide for adequate vision, communication, low temperature work environments, concurrent use of other safety or radiological protection equipment, and other special capabilities, such as adequate skin protection, when needed. The licensee shall use equipment in such a way as not to interfere with the proper operation of the respirator.
 - (6) Standby rescue persons are required whenever one-piece atmosphere-supplying suits, or any combination of supplied air respiratory protection device and personnel protective equipment are used from which an unaided individual would have difficulty extricating himself or herself. The standby persons must be equipped with respiratory protection devices or other apparatus appropriate for the potential hazards. The standby rescue persons shall observe or otherwise maintain continuous communication with the workers (visual, voice, signal line, telephone, radio, or other suitable means), and be immediately able to assist them in case of a failure of the air supply or for any other reason that requires relief from distress. A sufficient number of rescue persons must be immediately available to assist all users of this type of equipment and to provide effective emergency rescue if needed.
 - (7) Atmosphere-supplying respirators must be supplied with respirable air of grade D quality or better as defined by the compressed gas association in publication G-7.1, "commodity specifications for air," 1997 and included in 29 C.F.R. 1910.134(i)(1)(ii)(A) to (E) (as published in the July 1, 2009 Code of Federal Regulations).
 - (8) The licensee shall ensure that no objects, materials, or substances, such as facial hair, or any conditions that interfere with the seal between the face and facepiece or valve function, and that are under the control of the respiratory wearer, are present between the skin of the wearer's face and the sealing surface of a tight-fitting respirator facepiece.
- (D) When estimating exposure of individuals to airborne radioactive materials, the licensee may make allowance for respiratory protection equipment used to limit intakes pursuant to paragraph (A) of this rule, provided that the following requirements, in addition to those in paragraph (C)(1) of this rule, are satisfied:
- (1) The licensee selects respiratory protection equipment that provides a protection factor, as specified in appendix A to this rule, greater than the multiple by which peak concentrations of airborne radioactive materials in the working area are expected to exceed the values specified in appendix C to rule 3701:1-38-12 of the Administrative Code. The concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the ambient concentration in air, without respiratory protection, during each period of uninterrupted use, by the protection factor. If the exposure is later found to be greater than initially

estimated, the corrected value shall be used. If the exposure is later found to be less than initially estimated, the corrected value may be used; and

- (2) The licensee shall obtain authorization from the department before assigning respiratory protection factors in excess of those specified in appendix A to this rule. The department may authorize a licensee to use higher protection factors on receipt of an application that:
 - (a) Describes the situation for which a need exists for higher protection factors; and
 - (b) Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.
- (E) The department may impose restrictions in addition to the provisions of this rule in order to:
 - (1) Ensure that the respiratory protection program of the licensee is adequate to limit doses to individuals from intakes of airborne radioactive materials consistent with maintaining total effective dose equivalent ALARA; and
 - (2) Limit the extent to which a licensee may use respiratory protection equipment instead of process or other engineering controls.
- (F) The licensee shall notify the department in writing at least thirty days before the date that respiratory protection equipment is first used pursuant to either paragraph (C) or (D) of this rule, except for emergency use.

Five Year Review (FYR) Dates: 07/01/2015 and 07/01/2020

CERTIFIED ELECTRONICALLY

Certification

07/01/2015

Date

Promulgated Under: 119.03
 Statutory Authority: 3748.04
 Rule Amplifies: 3748.04
 Prior Effective Dates: 7/22/2001, 10/22/06, 9/1/11