

TEXAS
EMERGENCY MANAGEMENT
PROCEDURES

PROCEDURE 8

RESPIRATORY PROTECTION

Radiological Emergency Procedures of the Radiation Control Program
Texas Department of State Health Services

PROCEDURE 8
RESPIRATORY PROTECTION

APPROVAL AND IMPLEMENTATION

This procedure is hereby approved for implementation and supersedes all previous editions.

06/02/2005
Date

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REPIRATORY PROTECTION

I. Purpose and Scope

This procedure describes respiratory protection for radiological emergency response personnel. It describes respiratory protective equipment, which has been selected by the Radiation Control Program (RCP) for use by response team members. It provides guidance for the fitting, use, and maintenance of that equipment.

This procedure addresses respiratory protection from all airborne radionuclides in particulate form, and radioiodine in any form. It **does not address** other possible entry modes and associated protective measure.

II. Discussion

A. Pantex Plant and other Radiological Accidents.

When responding to either the Pantex Plant or other types of accidents involving alpha radiation, using a High Efficiency Particulate (HEPA) filter I combination with a properly fitted respirator will reduce the possibility of inhaling radioactive particulates.

B. Nuclear Power Plant Accident Response

In the event of an offsite release of airborne radioactive materials from a nuclear power facility, the RCP does not intend to dispatch emergency response personnel to the centerline of the radioactive plume. Respiratory protection will not be required for RCP personnel. The primary radionuclides of concern for inhalation or ingestion are radioiodines. Because the proper usage of potassium iodide (KI) is an effective means of protecting against the hazards associated with inhalation of radioiodines, KI will be the primary mode of protection for emergency response personnel entering the plume path.

III. References

Respiratory protective guidance expressed in this procedure is derived from regulations, guidance and other information contained in the following documents:

- A. 10 CFR subpart H – Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, U.S. NRC

- B. ANSI Standard Z88.2 – 1980, Practices for Respiratory Protection
- C. NUREG-0041, Manual of Respiratory Protection Against Airborne Radioactive Materials, U.S. NRC
- D. NCRP Report No. 39, Basic Radiation Protection Criteria – 1984
- E. Procedure 9, Radioprotective Drugs
- F. Procedure 10, Monitoring and Sampling Airborne Releases

IV. Equipment Required

The RCP has selected the following equipment for use by field monitoring team members, and by other emergency workers in need of respiratory protection.

- A. Full face respirators – M.S.A. Ultra-twin
- B. M.S.A. Type H/HEPA cartridge
- C. M.S.A. GMEH/combo cartridge

V. Precautions and Limitations

- A. Since radioiodine and other radioactive materials typically associated with accidental releases have no properties that can be humanly sensed, it will not be possible for the user to tell when the adsorbent capacity of the filter has been exhausted. These devices should be used only when there is reliable information available concerning the types and probable levels of contamination in the atmosphere.
- B. The full-face piece respirator and the combination HEPA filters and cartridges supplied by the manufacturer are provided as a unit. Neither of these items is to be considered as interchangeable with other similar items from this or other manufacturers.
- C. Respirators cannot be used by persons whose facial hair or facial structure prevents an effective fit and seal of the face piece to the individual's face as demonstrated by successful performance of both positive and negative pressure fit tests.

- D. While it is highly unlikely that cartridge capacity would be exhausted during eight hours of response team use, cartridges will be discarded at the end of each shift because there is no readily available field test for determining cartridge adsorption capacity remaining.

VI. Prerequisites

Each user of respiratory protective equipment must have been instructed concerning the proper use and fit of this equipment.