

**TEXAS**  
**EMERGENCY MANAGEMENT**  
**PROCEDURES**

PROCEDURE 26

SELECTION AND USE OF PERSONAL PROTECTIVE EQUIPMENT

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

PROCEDURE 26

SELECTION AND USE OF PERSONAL PROTECTIVE EQUIPMENT

**APPROVAL AND IMPLEMENTATION**

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

06/02/2005  
Date

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<i><b>DATE OF CHANGE</b></i>	<i><b>INITIALS AND DATE ENTERED</b></i>
11/17/2003	Revised entire document
06/02/2005	Administrative changes

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SELECTION AND USE OF PERSONAL PROTECTIVE EQUIPMENT

I. Purpose

This procedure provides guidelines for the selection and use of personal protective equipment (PPE).

II. Discussion

Primarily, PPE is useful in preventing skin contamination, and in minimizing the quantity of radioactive materials, which are carried out of the affected area.

Additionally, while it provides negligible shielding from external gamma exposure, PPE can provide significant protection from external beta or alpha exposure. PPE, including the face piece of a respirator, can also provide protection from alpha or beta skin burns, and from beta burns to the lens of the eye.

Optimum selection of PPE can only be made if specific job and work area conditions are known. In lieu of such complete data, selection of articles should be conservative, adequate to provide protection under the most extreme conditions which are likely to be encountered on a given assignment.

III. References

- A. 25 Texas Administrative Code § 289
- B. Procedure 5, Personnel Monitoring and Decontamination
- C. Procedure 8, Respiratory Protection

IV. Equipment Required

- A. Coveralls
- B. Shoe covers
- C. Outer shoe covers, if needed
- D. Surgeon's cap
- E. Cloth hood
- F. Cloth glove liners
- G. Rubber or plastic gloves
- H. 2" roll of tape
- I. Lab coat, optional

- J. Rubber boots, optional
- K. Rain suit with hood, optional

V. Precautions and Limitations

- A. Each article of PPE should be inspected for holes, torn seams, missing buttons and broken zippers prior to donning. If damage is found, the item should be tagged accordingly, laid aside, and another item selected for inspection. Minor tears may be covered with tape if necessary.)
- B. TLD's should be worn inside PPE to prevent contamination.
- C. Dosimetry must be worn in such a manner as to be accessible without opening any closures on PPE; i.e., either in an outside pocket or on a cord around the neck.
- D. Ensure PPE fits comfortably and does not limit movement or unnecessarily restrict vision.
- E. Exercise caution during removal of all PPE removal to prevent contamination of skin and/or personal clothing.

VI. Procedure

- A. General guidelines for the use of PPE
  - 1. PPE shall be used as specified by the Radiation Control Program (RCP) and/or as instructed in postings at the entrance to contaminated area.
  - 2. Except while team members are in transit to or from staging area or other duty stations, PPE should not be worn outside the contaminated area.
  - 3. PPE lab coats may be reused on the same day if lab coat contamination levels do not exceed the work area contamination levels.

Note: Lab coats provide only minimal protection. Their primary usage is for convenience and time savings when a person must frequently exit and re-enter a confined area of very low level contamination.

- 4. Where a choice is permitted between wearing either rubber or plastic shoe covers and gloves, rubber items should be selected if greater durability is required.
- B. Guides for the Selection of PPE

1. Field monitoring team members will wear at least a single basic set of PPE (gloves and shoe covers) whenever they are outside their vehicles and until such time as the release and deposition of radioactive materials has terminated.
2. Field monitoring team members will wear respiratory protective equipment in accordance with Procedure 8.
3. Other individuals working in areas with undetermined levels of contamination will wear at least a single basic set of PPE if the possibility exists that such protection could be warranted, as determined by the Chief of Field Operations.
4. A guide for the use of PPE based on work area contamination levels and moisture conditions is shown on Attachment 1. This guide is only applicable in situations where contamination levels and other working conditions have been previously identified and can be expected to remain fairly stable, such as while supervising cleanup following an accident at a source manufacturer's facility.
5. Additional guidance for response team selection of PPE may be issued on an incident-specific basis.

C. Donning PPE

The following is a suggested sequence for donning a typical single set of PPE. The actual sequence is unimportant as long as the final dress condition is correct.

1. Don coveralls. Tape over zipper or flap on coverall opening, transfer dosimetry to coveralls.
2. Don cloth shoe covers. Tuck coverall legs into shoe covers and tape over openings if only cloth shoe covers are to be worn. If rubber or plastic shoe covers are also to be worn, coverall legs should be outside the cloth shoe covers.
3. Don rubber or plastic shoe covers. Tuck coverall legs into plastic or rubber shoe covers and tape over opening.
4. Don surgeon's cap or hood.
5. Don disposable cloth glove liners.
6. Don rubber or plastic gloves. Tuck coverall sleeves into gloves and tape over openings.
7. Where practical, all pockets and other garment openings should be taped closed to prevent entry of contaminants.

D. Removing PPE

The sequence for removing a typical single set of PPE is shown on Attachment 2. The sequence is important to prevent contamination of skin and street clothing during PPE removal. A general rule to follow is “touch contaminated with contaminated; clean with clean”.



CONTAMINATION GUIDES FOR THE SELECTION OF PPE  
(Use this guide only if levels are known and conditions are stable.)

CASE	DESCRIPTION	CLOTHING
1	<u>Dry</u> contamination levels >1000 dpm/100cm <sup>2</sup> but ≤2000 dpm/100cm <sup>2</sup> on the floor.	Rubber, plastic or cloth shoe covers; rubber or plastic gloves.
2	<u>Moist</u> or <u>wet</u> contamination levels >1000 dpm/100cm <sup>2</sup> but ≤2000 dpm/100cm <sup>2</sup> on the floor.	Rubber or plastic shoe covers; rubber or plastic gloves.
3	<u>Dry</u> contamination levels >1000 dpm/100cm <sup>2</sup> but ≤2000 dpm/100cm <sup>2</sup> on equipment as well as on the floor.	Rubber, plastic or cloth shoe covers; rubber or plastic gloves; lab coat or coveralls; hood or surgeon's cap if contamination is overhead.
4	<u>Moist</u> or <u>wet</u> contamination levels >1000 dpm/100cm <sup>2</sup> but ≤2000 dpm/100cm <sup>2</sup> on equipment as well as on the floor.	Rubber or plastic shoe covers; rubber or plastic gloves; lab coat or coveralls; hood or surgeon's cap if contamination is overhead.
5	<u>Dry</u> contamination levels >2000 dpm/100cm <sup>2</sup> but ≤10000 dpm/100cm <sup>2</sup> on the floor and/or equipment.	Cloth shoe covers <u>and</u> rubber or plastic shoe covers; coveralls; rubber or plastic gloves with cloth liners; hood or surgeon's cap if contamination is overhead.
6	<u>Moist</u> or <u>wet</u> contamination levels >2000 dpm/100cm <sup>2</sup> but ≤10000 dpm/100cm <sup>2</sup> on the floor and/or equipment.	Rubber or plastic shoe covers; coveralls; rubber or plastic gloves with cloth liners; hood or surgeon's cap if contamination is overhead.
7	<u>Dry</u> , <u>moist</u> or <u>wet</u> contamination levels >10000 dpm/100cm <sup>2</sup> on the floor and/or equipment.	Cloth shoe covers <u>and</u> rubber or plastic shoe covers (rubber boots if standing water is present); coveralls; rubber or plastic gloves with cloth liners; hood.
8	Any level of contamination in an area which is extremely wet or where personnel may be sprayed with contamination.	Cloth shoe covers and rubber boots; two pair of coveralls; two pair of rubber gloves with cloth liners; rain suit with hood.

a.

SEQUENCE FOR PPE REMOVAL

CONTAMINATED AREA	1 <sup>ST</sup> STEP-OFF PAD*	2 <sup>ND</sup> STEP-OFF PAD
Remove cloth hood and respirator, if worn.	Remove all tape (trash).	Remove cloth glove liners (trash).
Remove rubber shoe covers one at a time. Using care, place foot on 1 <sup>st</sup> Step-off Pad as each shoe cover is removed.	Pull coverall legs from shoe covers.	Frisk entire body for contamination. **
	Unzip (or button) coveralls.	Frisk each foot (one at a time), and then place the foot in clean area after each shoe is frisked. **
	Remove surgeon's cap.	
	Remove rubber gloves.	
	Remove dosimetry devices, frisk and place in this area.	
	Remove coveralls (inside out).	
	Remove cloth shoe covers one at a time. Carefully place foot on 2 <sup>nd</sup> Step-off Pad as each shoe cover is removed.	

\*If only one step-off pad is being used, these items are removed in the contaminated area prior to stepping on the pad.

\*\*Background radiation levels may prevent frisking at a local control point. If this is the case, move to a low background area and perform final monitoring.

If time and manpower permit, items should be sorted as contaminated or uncontaminated, and each category further sorted for disposal or reuse. Provisions for decontamination of reusable items will be identified on an incident-specific basis.