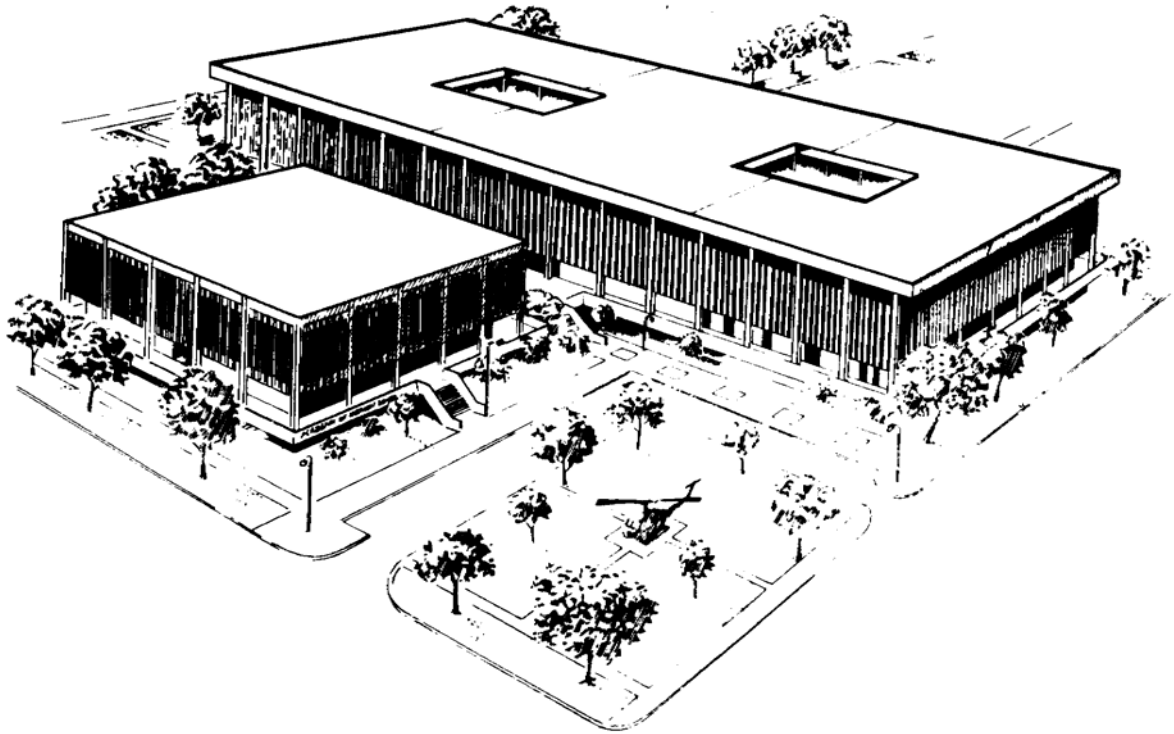


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**U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL  
FORT SAM HOUSTON, TEXAS 78234-6100**

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# **DECONTAMINATING CASUALTIES**

**SUBCOURSE MD0537 EDITION 100**

## **DEVELOPMENT**

This subcourse is approved for resident and correspondence course instruction. It reflects the current thought of the US Army Medical Department Center and School (AMEDDC&S) and conforms to printed Department of the Army doctrine as closely as currently possible. Development and progress render such doctrine continuously subject to change.

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**CORRESPONDENCE COURSE OF THE  
U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL**

**SUBCOURSE MDO537**

**DECONTAMINATING CASUALTIES**

**INTRODUCTION**

The management of contaminated casualties poses a serious problem and reduces the effectiveness of our combat power. Contamination degrades our ability to perform as individuals and units. It forces us into protective equipment, thereby reducing our ability to communicate, locomote, advance, or defend. The more we understand the characteristics of contamination, the more successful we will be in minimizing the number of casualties. In previous years, we took soldiers out of combat when they became contaminated because the decontamination process took approximately eighteen hours. Today, protective covering, methods of decontamination, and proper treatment enable soldiers to return to duty (RTD) with minimum delay. This subcourse presents factors that will assist the individual soldier, planner, and leader in the integration of NBC defense measures in tactical operation.

Subcourse Components

This subcourse consists of four lessons. The lessons are:

- Lesson 1, Set Up a Casualty Decontamination Station.
- Lesson 2, Route a Casualty Through a Decontamination Station.
- Lesson 3, Decontaminate a NBC Casualty.
- Lesson 4, Decontaminate Yourself.

Credit Awarded: To receive 8 credit hours, you must enroll in the subcourse and take the examination.

## LESSON ASSIGNMENT

### LESSON 1

Set up a Casualty Decontamination Station.

### LESSON ASSIGNMENT

Paragraphs 1-1 through 1-11.

### OBJECTIVES

When you have completed objectives, this lesson, you should be able to:

- 1-1. Identify factors to be considered when selecting a site for the location of the casualty decontamination station.
- 1-2. Identify the process required to set up a decontamination area.
- 1-3. Identify the process required to set up the clean side of the decontamination station.
- 1-4. Identify methods required to set up a shuffle pit.
- 1-5. Identify methods required to set up a collective protective shelter.
- 1-6. Identify methods required to set up an evacuation holding area.
- 1-7. Identify the procedures for setting up the hot line.
- 1-8. Identify procedures for establishing ambulance points.
- 1-9. Identify procedures for setting up a dirty dump.
- 1-10. Identify location for emplacing the chemical agent alarm.

### SUGGESTIONS

After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you achieve the lesson objectives.

For additional information, refer to the following:

FM 8-235, Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries.

FM 21-11, First Aid for Soldiers.

## LESSON 1

### SET UP A CASUALTY DECONTAMINATION STATION

#### 1-1. SELECT SITES FOR THE LOCATION OF THE OPERATION

a. **Set Up the Decontamination Station in an Uncontaminated Area.** A fully operational decontamination station is set up in an uncontaminated area. The decontamination area is on the downwind side of the collective protective shelter (CPS) or other clean treatment area, and a hot line is clearly marked. A shuffle pit is constructed as the only point of access to the clean areas (see Figure 1-1).

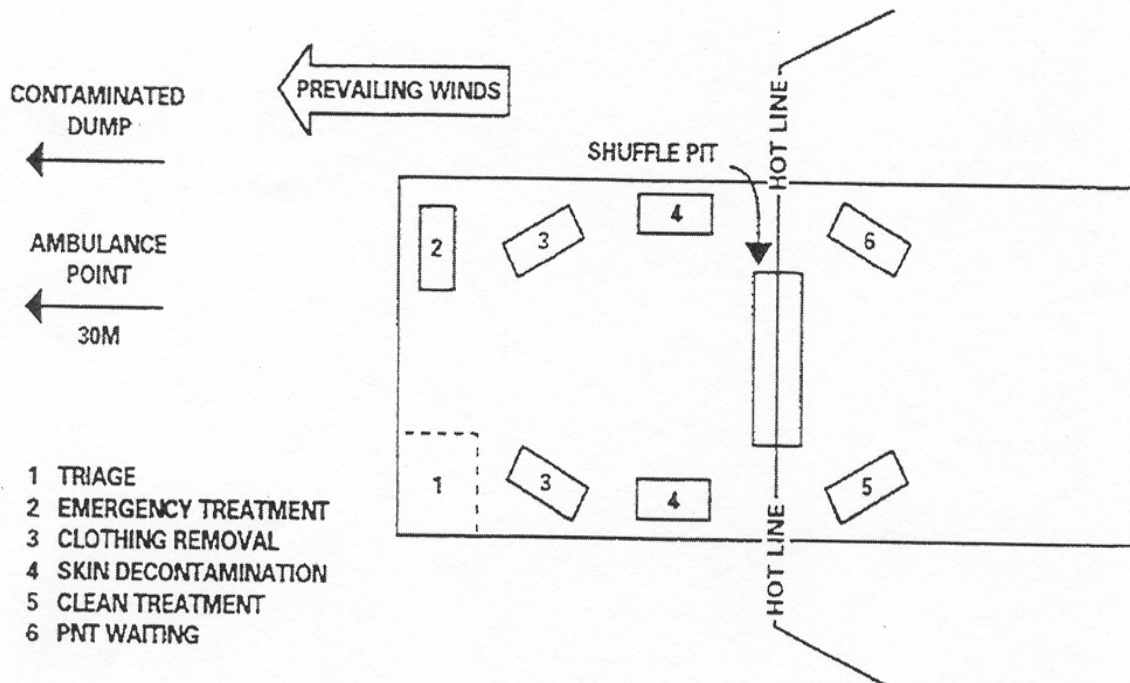


Figure 1-1. Painted decontamination area.

b. **Establish Primary and Alternate Sites.** Site selection is determined by physical and tactical situations including:

- (1) The direction of the prevailing winds.
- (2) The downwind chemical hazard.
- (3) The availability of CPSs or a building for clean treatment facilities.
- (4) The terrain.

(5) The availability of cover and concealment. The M51 CPS possesses visual, audible, and infrared signatures; therefore concealment may be compromised.

(6) The general tactical situation.

(7) The availability of evacuation routes (contaminated and clean).

(8) The location of the supported unit's vehicle decontamination point and mission oriented protective position (MOPP) exchange point. (It is sometimes best to collocate with these unit decontamination sites). The arrangement of the operational areas must be kept flexible and adaptable to both the medical and tactical situations.

## 1-2. SET UP THE OVERHEAD COVER

a. The overhead cover should be at least 20 feet x 50 feet. It should be erected to cover the decontamination area and the clean waiting and treatment area. When the protective shelter is used, the overhead cover should overlap the airlock entrance (see Figure 1-2).

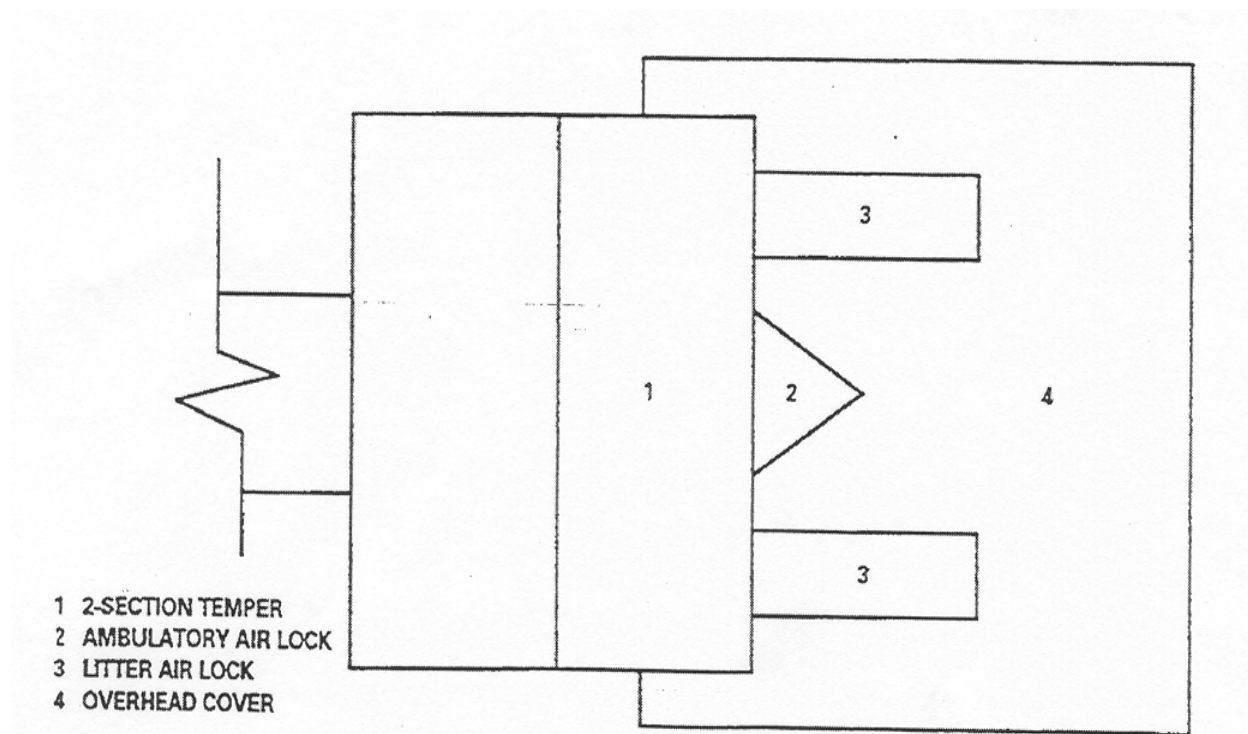


Figure 1-2. Overhead cover.

b. Alternative materials such as trailer covers, ponchos, and tarpaulins can be used if plastic sheeting is not available.

### **1-3. SET UP THE CLEAN SIDE OF THE DECONTAMINATION**

Set up the clean treatment station on the upwind side of the contaminated areas. An open air treatment facility can be established 30 to 50 meters upwind of the decontaminated station.

- a. Set up clean waiting area (for patient disposition, and so forth).
- b. Set up clean treatment area.

**NOTE:** Erect windsock to tell the direction of the wind.

### **1-4. SET UP THE SHUFFLE PIT**

a. The shuffle pit is the only point of access between the decontamination area and the clean waiting/treatment area.

b. The soil is turned over 3 to 6 inches deep, in an area that is sufficient in length and width to accommodate a litter stand.

**NOTE:** The shuffle pit is wide enough that the litter bearers are not able to straddle the pit.

c. Super tropical bleach (STB) is mixed with the overturned soil in a ratio of 2 parts STB to 3 parts soil.

### **1-5. SET UP A COLLECTIVE PROTECTIVE**

a. Set up the protective shelter on the upwind side of the clean waiting and treatment area (see Figure 1-3).

b. Set up the air lock. Set up the protective shelter with the air lock adjoining the clean side of the decontamination station.



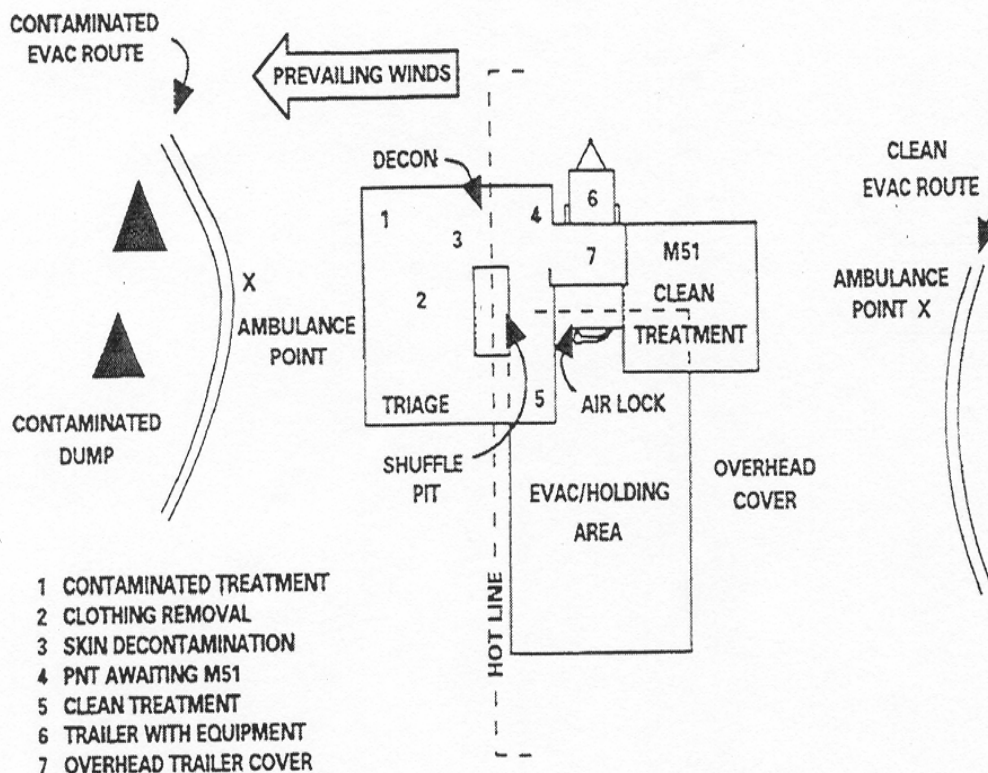


Figure 1-3. Battalion aid station using M51 shelter system.

## 1-6. ESTABLISH THE EVACUATION HOLDING AREA

a. **Set up Cover.** Set up an overhead cover of plastic sheeting. It should be at least 20 x 25 feet.

b. **Place the Cover.** The cover should overlap part of the clean treatment area and part of the protective shelter. When the protective shelter is used, the cover should be set up on the opposite side of the generator.

## 1-7. SET UP THE HOT LINE

Use wire, engineer tape, or other similar material to mark the entire perimeter of the hot line. Be sure that the hot line is clearly marked.

## 1-8. ESTABLISH AMBULANCE POINTS

Ambulance points should be established on both the "clean" and "dirty" sides of the evacuation route.

a. **Set up a "Dirty" Ambulance Point.** The "dirty" ambulance point should be established downwind of the triage area in the decontamination station.

b. **Set up a "Clean" Ambulance Point.** The "clean" ambulance point should be established upwind of the evacuation holding area and on the clean side of the decontamination station.

#### **1-9. SET UP A DIRTY DUMP**

a. **Establish the Dirty Dump.** The contaminated dump should be established 75 to 100 meters downwind of the decontamination station.

b. **Mark the Dirty Dump.** The dirty dump must be clearly marked with the North Atlantic Treaty Organization (NATO) chemical warning markers.

c. **Notify Higher Headquarters.** The location and the contents of the dirty dump must be sent to higher headquarters.

#### **1-10. PLACE THE CHEMICAL AGENT ALARMS AND CAMOUFLAGE THE AREA**

a. **Set up Alarms.** Set the alarms upwind of the clean treatment area.

b. **Locate the Alarms.** If the decontamination station and the clean treatment areas are not collocated, set alarms upwind of the clean treatment area and between the two elements.

c. **Camouflage All Areas.** Camouflage all areas in accordance with tactical directives.

#### **1-11. RELOCATE THE PROTECTIVE SYSTEM**

Sometimes the collective protective system may need to relocate for continued unit medical support. The CPS in use is decontaminated when it is possible. It is then disassembled and loaded in the carrier trailer. The overhead covers and camouflage netting are burned or buried if contaminated. Then the contaminated dump is marked. The CPS and all auxiliary equipment are destroyed if they cannot be relocated from the area.

**NOTE:** Establish a dedicated communication link (telephone or radio) if the decontamination station and medical treatment facility are not collocated. Establish the casualty shuttle service between the two elements.

[Continue with Exercises](#)

## EXERCISES, LESSON 1

**INSTRUCTIONS:** Answer the following exercises by writing the missing word in the blank.

After you have answered all of the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. The decontamination area is on the \_\_\_\_\_ side of the collective protective shelter.
2. The \_\_\_\_\_ station is set up in an uncontaminated area.
3. The \_\_\_\_\_ is constructed as the only point of access to the clean areas.
4. The overhead cover should be at least 20 feet by \_\_\_\_\_ feet.
5. Alternative materials such as trailer covers, tarpaulins, and ponchos may be used if \_\_\_\_\_ is not available for overhead cover.
6. The overhead cover should be erected to overlap the \_\_\_\_\_ entrance.
7. Set up the clean decontamination area on the upwind side of the \_\_\_\_\_ area.
8. Soil in the shuffle pit should be turned over 3 to 6 inches deep, and wide enough to accommodate a \_\_\_\_\_.
9. The \_\_\_\_\_ is wide enough that the litter bearers are not able to straddle it.
10. Super tropical bleach is mixed with soil in the shuffle pit by two parts STS to \_\_\_\_\_ parts soil.

11. The collective protective shelter (CPS) is set up on the \_\_\_\_\_ side of the clean waiting and treatment area.
12. The \_\_\_\_\_ is set up if the decontamination station and medical treatment facility are not collocated.
13. The open air treatment facility is set up 30 to 50 meters up-wind of the \_\_\_\_\_.
14. The overhead covering of plastic sheeting should be at least \_\_\_\_\_X \_\_\_\_\_ feet.
15. Wire, tape, or other similar material is used to mark the entire perimeter of the \_\_\_\_\_.
16. Ambulance points should be set up on both the "clean" and "dirty" sides of the \_\_\_\_\_ routes.
17. The dirty ambulance point should be established on the \_\_\_\_\_ wind side of the triage area in the decontamination station.
18. The clean ambulance point is established \_\_\_\_\_ wind of the evacuation holding area and on the clean side of the decontamination.
19. The "dirty" dump should be established 75 to 100 meters \_\_\_\_\_ wind of the decontamination site.
20. The chemical alarm should be set \_\_\_\_\_ wind of the clean treatment area cover.

**Check Your Answers on Next Page**

## SOLUTIONS TO EXERCISES, LESSON 1

1. downwind (para 1-1a(1))
2. decontamination (1-1a)
3. shuffle pit (para 1-1 a (1))
4. 50 (para 1-2a)
5. plastic (para 1-2b)
6. airlock (para 1-2a)
7. contaminated (para 1-3)
8. litter stand (para 1-4)
9. shuffle pit (para 1-4)
10. three (para 1-4)
11. upwind (para 1-5a)
12. communication link (para 1-5b)
13. decontamination station (para 1-3)
14. 20 x 25 (para 1-6a)
15. hot line (para 1-7a)
16. evacuation (para 1-8)
17. down (para 1-8a)
18. up (para 1-8b)
19. down (para 1-9a)
20. up (para 1-10a)

**END OF LESSON 1**

## LESSON ASSIGNMENT

**LESSON 2** Route a Casualty Through a Decontamination Station.

**LESSON ASSIGNMENT** Paragraphs 2-1 through 2-7.

**TASK** 081-833-0094, Route a Casualty Through a Decontamination Station

**OBJECTIVES:** When you have completed this lesson you should be able to:

- 2-1. Identify procedures for routing casualties through the triage area
- 2-2. Identify procedures for routing casualties through the emergency treatment area.
- 2-3. Identify procedures for routing casualties through the clothing removal area.
- 2-4. Identify procedures for routing casualties through the skin decontamination area.
- 2-5. Identify procedures for routing casualties through the shuffle pit
- 2-6. Identify procedures for routing casualties through the clean treatment/waiting area.
- 2-7. Identify procedures for routing casualties through the protective shelter.

**SUGGESTION:** After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you achieve the lesson objectives.

## LESSON 2

### ROUTE A CASUALTY THROUGH A DECONTAMINATION STATION

#### 2-1. ROUTE CASUALTIES THROUGH THE TRIAGE AREA

a. Routing of casualties must be efficiently accomplished in order to promote effective decontamination and treatment while at the same time conserving valuable resources. The senior medic on each side of the "hot line" is responsible for smooth casualty flow. Consider all casualties to be contaminated if no clarifying information is available. Casualties will be sorted in the triage area.

(1) Casualties who have life-threatening conventional injuries in addition to chemical contamination are routed to the contaminated emergency treatment area by the senior medic where they are stabilized prior to decontamination of rearward evacuation.

(2) Casualties who have conventional injuries in addition to chemical contamination but do not require emergency intervention to save life or limb are routed by the senior medic to the clothing removal/skin decontamination area.

(3) A senior physician will route casualties who are stable and require definitive treatment at the corps level to a contaminated holding area to wait rearward evacuation along a contaminated evacuation route. If the casualty load permits, the casualties should be decontaminated before rearward evacuation.

(4) Incoming unconventional casualties are routed directly to the clean treatment area by the senior physician.

(5) Ambulatory casualties are routed to the decontamination area the senior physician and directed to use self-aid or buddy-aid to decontaminate themselves. Ambulatory casualties may also be directed to use the unit personnel decontamination area in accordance with local standing operating procedures (SOP).

b. All of the steps necessary to correctly establish priorities for the treatment and evacuation on an integrated battlefield will be performed.

(1) Survey for conventional injuries.

(2) Survey for signs and symptoms of chemical agent poisoning.

(3) Check the casualty's response to simple directions such as, "Hold up your right arm."

- (4) Ask the casualty to describe any symptoms.
  - (5) Check for symptoms of chemical agent poisoning.
  - (6) Establish priorities for treating the casualties.
- c. Establish priorities for treating the casualties.
- (1) Immediate.
    - (a) The casualty shows no signs and symptoms of chemical agent.
    - (b) Life-threatening conventional injuries are evident.
  - (2) Chemical immediate.
    - (a) The casualty shows signs and symptoms of severe chemical agent poisoning.
    - (b) The casualty has no conventional injuries.
  - (3) Delayed.
    - (a) Mild signs and symptoms of chemical agent are present.
    - (b) There are conventional injuries that are not life threatening.
  - (4) Minimal.
    - (a) There are no signs and symptoms of chemical agent poisoning.
    - (b) There are no life-threatening conventional injuries.
  - (5) Expectant.
    - (a) There are severe signs and symptoms of chemical agent poisoning with life-threatening conventional injuries.
    - (b) There are no conventional injuries but patient is not breathing

## **2-2. ROUTE CASUALTIES THROUGH THE EMERGENCY TREATMENT AREA**

a. Ambulatory casualties may be routed through the decontamination area and directed to use self-aid or buddy-aid to decontaminate themselves. Ambulatory casualties may also be directed to use the unit personnel decontamination area in accordance with local SOP.



b. A senior aidman routes casualties that need to be treated for life-threatening injuries to the emergency treatment area where they are treated and stabilized by a medical officer.

c. After treatment and stabilization, casualties are routed to the clothing removal area.

### **2-3. ROUTE CASUALTIES THROUGH THE CLOTHING REMOVAL AREA**

a. There should be a minimum of eight nonmedical augmentees furnished by the supported unit under the direct supervision of medical personnel. An aidman will supervise the clothing removal area.

b. The augmentees remove everything from the casualty except the protective mask and medical items (dressings, bandages, splints, and tourniquets).

### **2-4. ROUTE CASUALTIES THROUGH THE SKIN DECONTAMINATION AREA**

a. The nonmedical augmentees will perform skin decontamination under the supervision of an aidman.

b. Medical personnel check and cut around medical items such as dressings, splints, and tourniquets.

### **2-5. ROUTE CASUALTIES THROUGH THE SHUFFLE PIT**

a. After the patient's clothing has been cut away and his skin decontaminated, two members of the decontamination team move the patient's litter to the shuffle pit and place the litter upon the litter stands. The shuffle pit is wide enough to prevent members of the patient decontamination team from straddling it while carrying the litter. A third member of the decontamination team assists with transferring the patient to a clean treatment litter in the shuffle pit.

**NOTE:** The shuffle pit is the only point of entry to the clean, treatment areas. The hot line separates the contaminated area from the clean area.

b. Personnel from the clean side of the hot line and the third augmentee from the decontamination team transfer the patient to the clean litter.

c. A person from the clean side of the hot line copies the casualty's field medical card. A member of the skin decontamination teams disposes of the old (contaminated) card.

d. Personnel from the clean side of the hot line remove the casualty from the shuffle pit into the clean waiting/treatment area.

e. If the clean treatment facility (collective protective shelter or other clean treatment area) is not collocated with the decontamination area, it may be necessary to place the casualties in a protective patient wrap (PPW) at the shuffle pit. This will provide protection against chemical agents while being transported to the clean treatment facility. If PPWs (see Figure 2-1) are not available, blankets and plastic wraps may be used to protect the casualty.

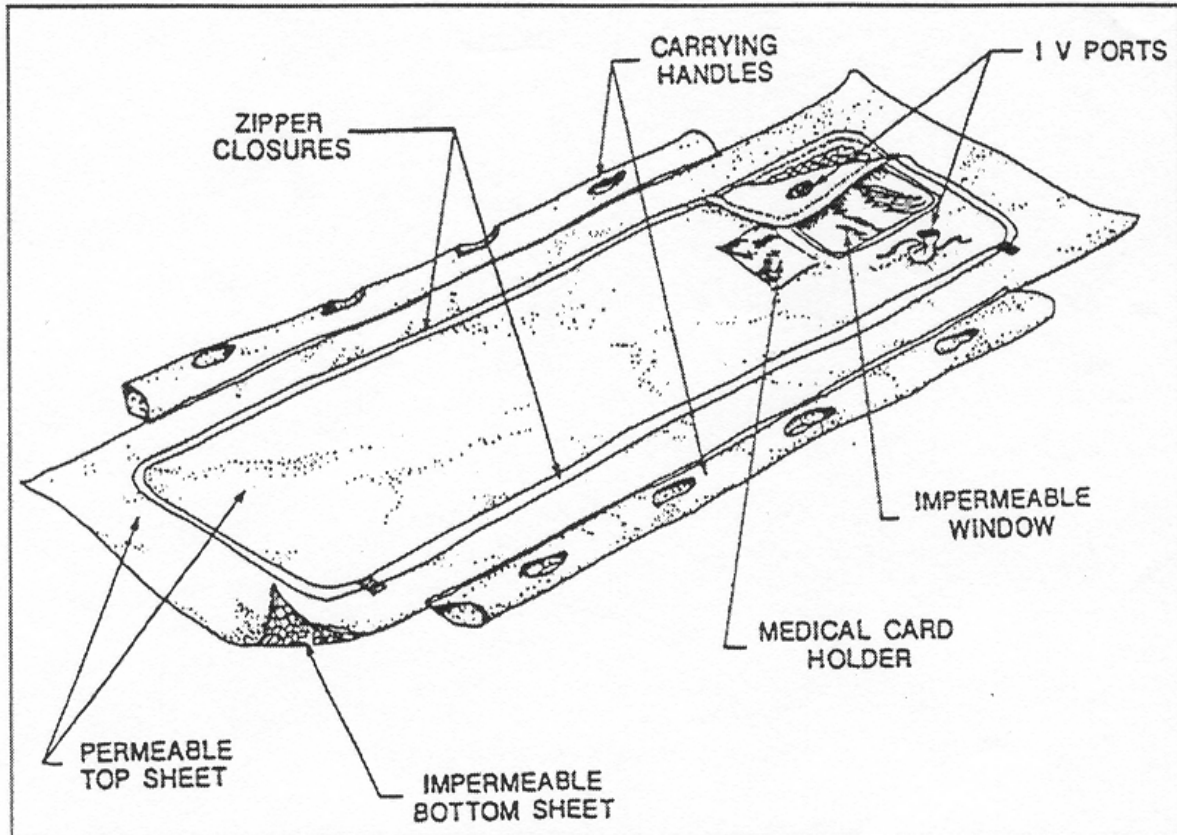


Figure 2-1. Protective patient wrap.

## 2-6. ROUTE A CASUALTY THROUGH THE CLEAN TREATMENT/WAITING AREA

a. Casualties are triaged by a senior medic on the clean side of the hot line. Casualties who require further medical treatment are placed in the clean waiting area for admission to the collective protective system. If a long waiting line develops for casualties waiting treatment, the aidman on the clean side of the hot line retriages the casualties.

b. Casualties who require further medical treatment are placed in the clean waiting area for admission to the CPS. The collective protective shelter may be an M51, tentage, an unoccupied building, or other chemical shelter. When a collective shelter is not available, a clean treatment area should be established under an overhead cover at a distance of 100 meters to reduce the risk of contamination. Each patient and all other personnel who enter through the chemical protective shelter must enter through the air lock.

c. Casualties who are stable and do not require further treatment will be placed in a patient protective wrap and moved to the clean holding area to wait for evacuation.

## **2-7. ROUTE CASUALTIES THROUGH THE COLLECTIVE PROTECTIVE SHELTER**

a. The internal configuration of the collective protective shelter will depend on the tactical situation, such as the presence or absence of toxic agents, the number of casualties, and the available means of evacuation to the medical treatment facilities (MTFs).

b. All casualties and personnel who enter the air lock must have been decontaminated.

c. A medic will control the flow of casualties and personnel through the air lock. Two litter patients at a time can be processed through the air lock. The air space is purged after the air lock doors are closed. The medic then removes the patient's protective mask and places it in a plastic bag.

d. Patients are moved from the air lock into the emergency medical service (EMS) section. Patients who need minor surgery are treated in the EMS and then moved to the postoperative area where they are placed in a PPW to await exit from the shelter.

e. Patients who required surgery are moved from the EMS to the pre-operative area to wait for admission to the operating room (OR) for treatment.

f. Following the surgical procedure, the patients are moved from the OR to the post operative area. They are placed in PPWs to wait exit from the shelter to the rear holding area.

[Continue with Exercises](#)

## EXERCISES, LESSON 2

**INSTRUCTIONS:** Answer the following exercises by marking the lettered response that best answers the question or best completes the sentence, by completing the incomplete sentence, by writing the answer in the space provided at the end of the exercise, or by indicating whether the statement is true or false.

After you have answered all of the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the lesson material referenced with the solution.

1. Casualties are first routed through the \_\_\_\_\_ area.
2. Casualties who have conventional injuries in addition to chemical contamination but do not require emergency treatment are routed to the \_\_\_\_\_ area.
3. An \_\_\_\_\_ will supervise the nonmedical augmentees who are furnished by the supported unit.
4. The only point of entry into the clean treatment area is through the \_\_\_\_\_ pit.
5. Casualties who are stable and do not need further treatment in the clean treatment area are placed in a \_\_\_\_\_.
6. The final area through which the casualty is routed is the \_\_\_\_\_.

**Check Your Answers on Next Page**

## **SOLUTIONS TO EXERCISES, LESSON 2**

1. triage (para 2-1 a)
2. clothing removal (para 2-1 a (2))
3. aidman (para 2-3a)
4. shuffle (para 2-5b)
5. patient protective wrap (para 2-5f)
6. collective protective shelter (para 2-7)

**END OF LESSON 2**

## LESSON ASSIGNMENT

### LESSON 3

Decontaminate an NBC Casualty

### LESSON ASSIGNMENT

Paragraphs 3-1 through 3-17.

### TASK

081-833-0095, Decontaminate a Casualty

### LESSON OBJECTIVES

When you have completed this lesson you should be able to:

- 3-1 Identify procedures for moving the casualty to casualty's hood and mask.
- 3-2. Identify procedures for removing and securing removing and securing the overgarment pockets.
- 3-3. Identify procedures for removing the casualty's overgarment jacket
- 3-4. Identify procedures for removing the casualty's overgarment trousers.
- 3-5. Identify procedures for removing the casualty's butyl rubber gloves.
- 3-6. Identify procedures for removing the casualty's protective over-boots.
- 3-7. Identify procedures for objectives removing the inner boots.
- 3-8. Identify procedures for cutting off the casualty's battle dress uniform (BDU).
- 3-9. Identify procedures for cutting off the casualty's undergarments.
- 3-10. Identify methods of removing the casualty's glove inner liners.
- 3-11. Identify methods of removing the casualty's socks.
- 3-12. Identify methods of removing the casualty's ID tags.

- 3-13. Identify methods of moving the casualty the skin decontamination litter.
- 3-14. Identify methods for checking contamination and performing skin decontamination.
- 3-15. Identify methods for decontaminating splints.
- 3-16. Identify methods for rechecking the casualty for contamination.
- 3-17. Identify methods for transferring the casualty to the shuffle pit

**SUGGESTION**

After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you achieve the lesson objectives.

## LESSON 3

### DECONTAMINATE AN NBC CASUALTY

#### 3-1. GENERAL

Medical personnel are responsible for the supervision of casualty decontamination at MTFs. However, non-medical soldiers may be called upon to augment a decontamination station as part of a decontamination team, which will be supervised by medical personnel. As a medic, you will need to know how to decontaminate the cut off the casualty's hood, decontaminate a casualty's mask and exposed skin, and cut off the mask, over garment, clothing, undergarment, and accessories.

#### 3-2. DECONTAMINATE THE MASK, HOOD, AND EXPOSED SKIN

a. Cover the casualty's mask air inlets with clean gauze or sponges. If the casualty is able to do this for himself, instruct him to do so.

b. Sponge down the front, sides, and top of the hood with a cellulose sponge soaked with 5 percent calcium hypochlorite solution or use M258A1 or M291 decontamination kit.

(1) Medical equipment sets (MES) for the chemical agent patient decontamination contains powdered calcium hypochlorite (high test hypochlorite or HTH). The powdered hypochlorite is mixed with water to make the decontaminating solution.

(2) Liquid chlorine bleach (household bleach) is a 5 percent solution of hypochlorite and may be used as a substitute for HTH.

c. Uncover the air mask inlets.

|

d. Remove the hood (see Figure 3-1).

(1) Dip the scissors in a 5 percent calcium hypochlorite solution.

(2) Cut the neck cord.

(3) Cut off the zipper cord.

(4) Release or cut the hood straps.

(5) Cut away the drawstring below the voicemitter.





Figure 3-1. Cutting off the hood.

- (6) Unzip the hood.
  - (7) Begin cutting at the zipper below the voicemitter
  - (8) Proceed cutting upward, close to the filter inlet covers and eye lens
  - (9) Cut upward to the top of the casualty, eye lens outserts.
  - (10) Cut across the forehead to the outer edge of the next eye outlet.
  - (11) Cut downward to the casualty's shoulder, staying close to the eye lens outserts and filter inlet covers.
  - (12) Cut across the lower part of the voicemitter to the zipper.
  - (13) Cut from the center of the forehead over the top of the head.
  - (14) Fold the left and right sides of the hood to the sides of the casualty's head, laying the sides of the hood on the litter.
- e. Decontaminate the casualty's mask and exposed skin.
- (1) Use the M258A1 or M291 decontamination kit or calcium hypochlorite (5.0 percent calcium hypochlorite for the mask and 0.5 percent solution for the skin).

**CAUTION:** Use only the 0.5 percent calcium hypochlorite solution to decontaminate the skin and the parts of the mask that touch the face. The 5 percent solution is corrosive and will burn the skin.

- (2) Decontaminate the exterior of the mask.
- (3) Wipe down all the exposed skin areas.
- (4) Copy the casualty's field medical card (FMC).
  - (a) Cut the FMC tie-wire and allow the card to fall into a plastic bag.
  - (b) Seal the plastic bag and rinse it with 0.5 percent decontamination solution.
  - (c) Place the plastic bag under the protective mask head straps (see Figure 3-2).



Figure 3-2. Maintaining the field medical card.

### 3-3. REMOVE AND SECURE CASUALTY'S PERSONAL EFFECTS

- a. Remove the casualty's personal articles from his pockets.
  - (1) Place all articles in a plastic bag.
  - (2) Label the bags with the casualty's name and social security number. (Print the information on a piece of paper and place the paper into a plastic bag).
- b. Secure the casualty's personal effects.
  - (1) Seal the plastic bags.

(2) If the contents are not contaminated, place the bags in the clean holding area for return to the casualty.

(3) If the contents are contaminated, place the bags in the contaminated holding area until they can be decontaminated.

### 3-4. REMOVE THE CASUALTY'S OVERGARMENT JACKET

a. Cut the sleeves and unzip the jacket.

(1) Cut the sleeve from the cuff up to the shoulder of the jacket, and then through the collar.

(2) Keep the cuts close to the inside of the arms so that most of the sleeve material can be folded outward (see Figure 3-3).

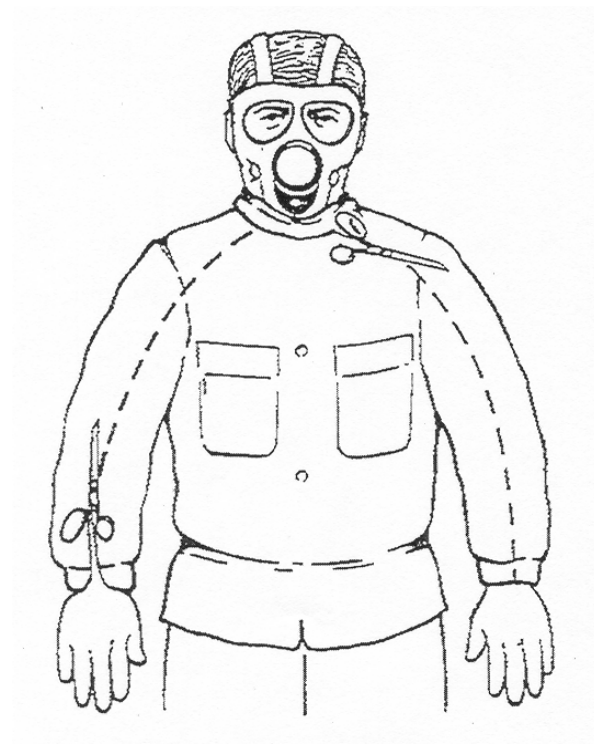


Figure 3-3. Removing the protective over-garment jacket.

**CAUTION:** Dip and scrub the scissors in 5 percent calcium hypochlorite solution before doing each cut to avoid contaminating the inner garment or the casualty's skin.

b. Unzip the jacket (or cut alongside the jacket's zipper).

(1) Roll the chest sections to the respective sides, with the inner black liner outward. Carefully tuck the cut jacket between the patient's arm and his sides.

- (2) Roll the cut sleeves away from the arms exposing the black liner.

**CAUTION:** Medical items are not removed at the clothing removal area. Cut around medical items such as dressings, splints, and tourniquets.

### 3-5. REMOVE THE CASUALTY'S OVERGARMENT TROUSERS

- a. Cut the trousers off the casualty rubber gloves.

- (1) Cut the trouser legs from the ankle to the waist. Keep the cuts near the inside of the legs, along the inseam to the crotch (see Figure 3-4).

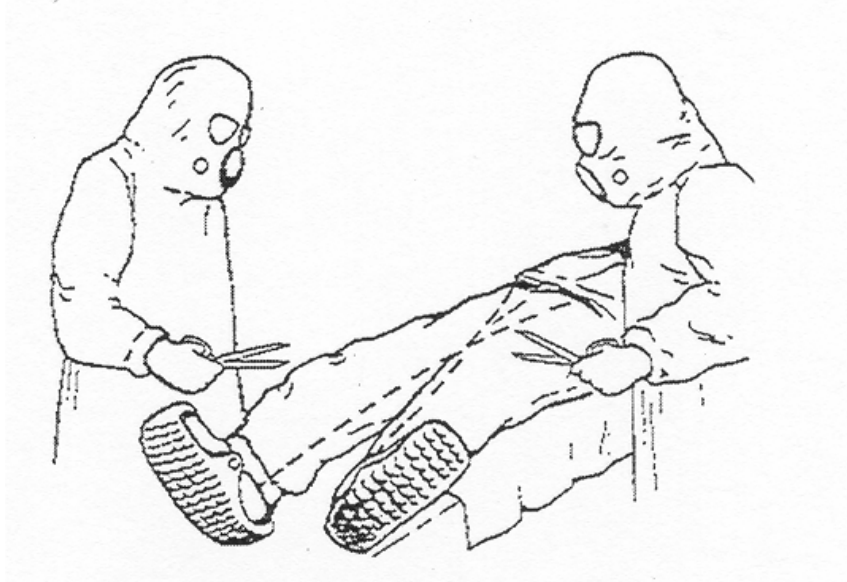


Figure 3-4. Removing protective overgarment trousers.

- (2) Cut up the right leg and across the crotch of the trousers.
- (3) Cut up the left leg, cross over the crotch cut, and continue to cut over the waist band.

**CAUTION:** Do not cut through the pockets.

- b. Fold and roll the cut trousers.

- (1) Fold and place the cut trousers onto the litter with the contaminated side away from the casualty. Do not allow the outer side of the overgarment to touch the skin or the casualty's undergarment.

- (2) Roll the inner leg portion between and under legs.

### **3-6. DECONTAMINATE THE BUTYL RUBBER GLOVES**

- a. Decontaminate your butyl rubber gloves in 5 percent calcium hypochlorite.
- b. Decontaminate the casualty's butyl rubber gloves.

(1) Lift the casualty's arm up and out of the cutaway sleeve if the casualty's condition will permit (see Figure 3-5).



Figure 3-5. Removing the casualty's gloves.

(2) Pull off the butyl rubber gloves by rolling the cuffs over the fingers, turning the glove inside out. Do not remove the white glove lining at this time.

(3) Lower the casualty's arms and fold them across his chest. Do not allow the arms to come into contact with the interior of the protective overgarment and litter. Place the butyl rubber gloves in a contaminated disposal container.

### **3-7. REMOVE THE CASUALTY'S PROTECTIVE OVERBOOTS AND INNER BOOTS**

- a. Remove the casualty's overboots.

(1) Stand at the foot of the litter facing the casualty.

(2) Cut the protective overboot laces.

(3) Grasp the heel of the protective overboot with one hand and the toe with the other hand.

- (4) Pull the heel down, and then toward you until the boot is removed.

**NOTE:** Have an assistant wipe down the end of the litter with 5 percent calcium hypochlorite solution while still holding the casualty's raised foot.

- (5) Place the overboots in a contaminated disposal container.

b. Remove the casualty's inner boots. Remove the inner boots by following the same procedures as for removing the protective overboots.

**NOTE:** Do not touch the patient's inner clothing or exposed skin when removing the inner boots.

### **3-8. CUT OFF THE CASUALTY'S BATTLE DRESS UNIFORM**

- a. Cut off the battle dress uniform (BDU).

- (1) Repeat the step in paragraph 3-4 to remove the casualty's personal effects from the BDU pockets before cutting off the BDU.

**CAUTION:** Decontaminate your butyl rubber gloves in 5 percent calcium hypochlorite before you touch the casualty's garment or exposed skin.

- (2) Uncross the casualty's arms.

- (3) Cut the BDU shirt using the same procedures as for the protective overgarment jacket.

- (4) Recross the casualty's arms over his chest.

- (5) Unbuckle or cut the belt material.

- b. Cut off the battle dress uniform trousers.

- (1) Cut the BDU trousers from the ankle to the waist. Keep the cuts near the insides of the legs, and along the inseam to the crotch.

- (2) Fold the cut BDU trouser halves onto the litter with the contaminated sides away from the casualty. Make sure the outer sides of the BDUs do not touch the skin or undergarment.

- (3) Roll the inner leg portion between and under the legs.

### **3-9. CUT OFF THE CASUALTY'S UNDERGARMENTS**

**CAUTION:** Decontaminate the butyl rubber gloves in 5 percent calcium hypochlorite before you touch the casualty's garments or exposed skin.

a. Cut off the underpants.

(1) Cut the undergarment pants legs from the ankle to the waist. Keep the cuts near the insides of the legs.

(2) Fold and cut the undergarment pants halves onto the litter

(3) Roll the inner leg portion under and between the legs.

b. Cut off the T-shirt.

(1) Cut the sleeves from the cuffs up to the shoulder of the T-shirt, and then through the collar.

(2) Remove the T-shirt from the casualty.

c. Cut the brassiere off a female casualty.

(1) Lift the casualty's arms off her chest.

(2) Cut between the cups.

(3) Cut both shoulder straps where they attach the cup.

(4) Lay the cups away from the casualty onto the litter.

(5) Lift the shoulder straps up and over the shoulders onto the litter. At this point, the white glove inner liners for the female may be removed with the casualty's arms raised from her chest.

### **3-10. REMOVE THE CASUALTY'S GLOVE INNER LINERS**

a. Remove the glove liners.

(1) Remove the liners using the same procedure used for removing butyl rubber gloves.

(2) Cross the casualty's arms over the chest.

b. Remove the inner liners.

(1) Grasp the fingers of the glove liner and roll the cuff over the fingers while turning the liner inside out.

(2) Place the liner in a contaminated disposal container.

### **3-11. REMOVE THE CASUALTY'S SOCKS**

**CAUTION:** Decontaminate your butyl rubber gloves in 5 percent hypochlorite before you touch the casualty's garment or exposed skin.

a. Position yourself at the foot of the liner.

b. Remove one of the casualty's socks.

(1) Roll the sock down over the foot.

(2) Turn the sock inside out or cut the sock off the casualty's foot.

(3) Place the sock into a contaminated disposal container.

(4) Use the same procedure to remove the other sock.

### **3-12. DETERMINE THE NECESSITY FOR REMOVING THE CASUALTY'S IDENTIFICATION TAGS**

a. Identification tags will not have to be removed during the clothing removal process unless one of the following conditions exist:

(1) The protective hood has been breached.

(2) The overgarment jacket (chest or neck areas) has been breached.

(3) The tags become contaminated through the clothing removal process.

b. Cut and remove the ID tags and chain, if needed.

(1) Cut the ID tag chain, allowing the chain to fall to the litter.

(2) Slip the ID tags from the chain, wipe them in 5 percent calcium hypochlorite solution, and let them fall into a plastic bag.



### 3-13. MOVE THE CASUALTY TO THE SKIN DECONTAMINATION AREA

#### a. Transfer the Casualty.

(1) Transfer the casualty to and then decontamination litter or onto a canvas that has been covered with plastic sheeting.

**CAUTION:** Use proper body mechanics to avoid injury to your back. Use your leg instead of your back to lift the casualty.

(2) Decontaminate your butyl rubber apron and gloves in 5 percent calcium hypochlorite solution.

b. **Lift the Casualty.** Lift the casualty out of the cutaway garment using a three-person arms carry.

(1) Lifter number 1 slides his arms (palms turned upward) under the casualty's head/neck and shoulder.

(2) Lifter number 2 slides his arms (palms turned upward) under the casualty's back and buttocks.

(3) Lifter number 3 slides his arms (palms turned upward) under the casualty's thighs and calves.

(4) Lifter number 1 gives the command to lift the casualty. (Prepare To Lift: LIFT.)

c. **Stand Upright.** Once the casualty has been lifted off the litter, all three lifters stand upright and turn the casualty in against their chests. At this point, the casualty has nothing on his body except his protective mask (minus the hood) and medical items (dressings, splints, and tourniquets).

d. **Replace Contaminated Litter.** While the casualty is being held, another team member quickly removes the contaminated litter and replaces it with a clean litter. A decontaminable mesh litter should be positioned, if available.

e. **Lower the Casualty.** Lower the casualty to a clean litter in a supine position on the command given by lifter number 1.

f. **Return Casualty to Skin Decontamination Area.** Carry the litter to the next station (skin decontamination) return to the clothing removal area.

g. **Dispose of Contaminated Materials.** Transfer all contaminated material to the clothing removal area for disposal.

(1) Place the casualty's contaminated clothing in a bag and put it in a contaminated disposal container.

(2) Rinse the dirty litter with 5 percent decontamination solution and place it in a dirty litter storage area.

**CAUTION:** Before obtaining another casualty, the clothing removal team should rinse their gloves and aprons in a 5 percent decontamination solution and drink enough water to compensate for the heat and workload.

### **3-14. REMOVE FIELD DRESSINGS AND BANDAGES**

#### **a. Cutoff Clothing.**

(1) Carefully cut off dressings and bandages.

**NOTE:** Medical personnel should be alert to the fact that removing dressings may disturb the clotting mechanism and result in the re- occurrence of bleeding. This is particularly important when multiple dressings are removed.

(2) Cut off any remaining clothing that was covered by the dressings and bandages.

#### **b. Decontaminate Skin.**

(1) Decontaminate the exposed areas of skin with the 0.5 percent calcium hypochlorite solution.

(2) Irrigate the wound with water, saline, or 0.5 percent calcium hypochlorite solution if the wound is suspected to be contaminated.

(3) Remove pieces of contaminated clothing or debris that may be lodged in the wound.

**NOTE:** Bandages are not replaced unless there is a critical medical need, such as to control bleeding. Bandages are replaced when the casualty is in the clean (uncontaminated) treatment area.

(4) Place all removed dressings and clothing in a contaminated disposal container.

### **3-15. REPLACE ANY TOURNIQUETS**

**NOTE:** This step must be performed by medical personnel.

a. **Replace Tourniquet.**

- (1) Remove the old tourniquet.
- (2) Remove any remaining clothing or dressing covered by the old tourniquet.
- (3) Place the new tourniquet ½ to 1 inch above the old tourniquet.
- (4) Decontaminate a large area around the existing tourniquet.

b. **Decontaminate and Irrigate.**

- (1) Decontaminate the newly exposed areas of skin with the 0.5 percent calcium hypochlorite solution.
- (2) Irrigate the wound with water, saline solution, or, if the wound is suspected to be contaminated, use 0.5 percent calcium hypochlorite solution.
- (3) Place the removed tourniquet, dressings, and clothing in a contaminated disposal container.

**3-16. RECHECK THE CASUALTY FOR CONTAMINATION**

- a. Use the M8 Chemical Agent Detector Paper or the chemical agent monitor to check the casualty a second time.
- b. Decontaminate any areas of contamination, as necessary.

**3-17. TRANSFER THE CASUALTY TO THE SHUFFLE PIT**

- a. **Transfer Casualty to the Shuffle Pit.** After the casualty's clothing has been cut away and the casualty's skin has been decontaminated, the litter is transferred to the shuffle pit and placed upon the litter stands. The shuffle pit is sufficiently wide that members of the team cannot straddle it.
- b. **Decontaminate Yourself.** Personnel decontaminate themselves by rinsing their butyl rubber gloves and apron with a 5 percent calcium hypochlorite solution.
- c. **Transfer Casualty to Clean Litter.** Lift the casualty from the decontamination litter and transfer him to the clean litter using the technique as in paragraph 3-13.

d. **Place Litter on Litter Stand.** Carry the litter to the shuffle pit, place it on the litter stand, and quickly move away from the shuffle pit. Personnel from the clean side of the hot line will take the casualty to the clean waiting area for retriage by the senior medic on the clean side of the hot line.

**WARNING**

**DO NOT STEP ACROSS THE HOT LINE.**

**NOTE:** If the clean treatment facility (CPS or other clean treatment area) is not collocated with the decontamination station, it may be necessary to place the hypochlorite solution before doing each cut casualty in a PPW at the shuffle pit. This will provide protection against chemical agents while the casualty is being transported to a treatment facility.

[Continue with Exercises](#)

### EXERCISES, LESSON 3

**INSTRUCTION:** Answer the following exercises by writing the answer in the space provided at end of the exercise.

After you have answered all of the exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the lesson material referenced with the solution.

1. To decontaminate the casualty's hood and mask, you must first cover the air outlets with clean gauze or \_\_\_\_\_.
2. Sponge down the front, side, and top of the hood with \_\_\_\_\_ percent calcium hypochlorite solution.
3. You should dip and scrub the scissors in \_\_\_\_\_ calcium hypochlorite solution after every two to three cuts when cutting off the casualty's hood.
4. Use only the M291 or the M258A1 decontamination kit or 0.5 percent calcium hypochlorite to decontaminate the \_\_\_\_\_ and 5 percent to decontaminate the mask.
5. Seal and secure the casualty's personal effects in a \_\_\_\_\_ bag.
6. To remove the casualty's overgarment jacket, first cut the \_\_\_\_\_ and unzip the jacket.
7. When cutting the casualty's overgarment jacket, dip and scrub the scissors in \_\_\_\_\_ percent hypochlorite solution before doing each cut.
8. To remove the casualty's overgarment trousers, cut the trousers from the ankle up to the \_\_\_\_\_.
9. Pull off the casualty's butyl rubber \_\_\_\_\_ by rolling the cuffs over the fingers.

10. To remove the casualty's overboots, first cut the overboot \_\_\_\_\_.
11. Before removing the casualty's BDUs, decontaminate your gloves in \_\_\_\_ percent calcium hypochlorite solution.
12. To remove the ID tag you must cut the ID tag's \_\_\_\_\_.

**Check Your Answers on Next Page**

## **SOLUTIONS TO EXERCISES, LESSON 3**

1. sponges (para 3-2a)
2. 5 (para 3-2b)
3. 5 (para 3-4a(2) CAUTION)
4. skin (para 3-2c(1))
5. plastic (para 3-3a(1))
6. sleeves (para 3-4a)-
7. 5 (para 3-4a(1) CAUTION)
8. waist (para 3-5a(1))
9. gloves (para 3-6b(2))
10. laces (para 3-7a(2))
11. 5 (para 3-8a(1) CAUTION)
12. chain (para 3-12b)

**END OF LESSON 3**

## LESSON ASSIGNMENT

<b>LESSON 4</b>	Decontaminate Yourself.
<b>LESSON ASSIGNMENT</b>	Paragraphs 4-1 through 4-2
<b>TASK</b>	031-503-1007, Decontaminate Your Skin and Personal Equipment
<b>OBJECTIVES:</b>	<p>When you have completed this lesson you should be able to:</p> <ul style="list-style-type: none"><li>4-1. Identify procedures for inspecting the M295 skin and equipment decontaminating kit.</li><li>4-2. Identify the procedures for decontaminating your skin.</li></ul>
<b>SUGGESTIONS</b>	<p>After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you achieve the lesson objectives.</p> <p>For additional information, refer to the following:</p> <p>TM 3-4230-229-10, Operator's Manual, Decontaminating Kit, Skin: M291.</p>



## LESSON 4

### DECONTAMINATE YOURSELF

#### 4-1. INSPECT THE DECONTAMINATING LESSON EQUIPMENT

Any person who suspects a chemical agent contamination of the eyes or face must act immediately. In most cases, you will not be able to identify the agent before decontamination. You should quickly obtain overhead shelter, protect yourself, and perform decontamination. Be sure your skin decontamination (decon) kit is ready for use before and after your mission.

- a. Inspect the kit for loose black powder. The kit is mission ready if no powder is detected. If powder is detected, inspect each packet for leaks.
- b. Discard all leaking packets.
- c. Reinsert the good packets into the carrying pouch with TEAR LINE at bottom.

**NOTE:** Request an additional kit if you have fewer than four packets left.

#### 4-2. PROCEDURES FOR DECONTAMINATING YOUR SKIN

**CAUTION:** Keep decontaminating powder out of eyes, cuts, or wounds. Use water to wash agents from eyes, cuts, or wounds. The complete decontamination of the face and other areas of exposed skin is done as quickly as possible, in three minutes or less.

- a. Put on your mask and hood. Do not zip the hood. Do not pull the drawstrings. Do not fasten the shoulder straps.
- b. Seek overhead cover or use a poncho for protection against further contamination.
- c. Remove one skin decon packet from carrying pouch.
- d. Tear open quickly at notch and remove applicator pad (see Figure 4-1).

**NOTE:** Although any notch may be used to open the packet, opening at the TEAR LINE will place applicator pad in a position that is easier to use.



Figure 4-1. Tearing open at notch and removing applicator pad.

- e. Remove applicator pad from packet and discard packet (see Figure 4-2).

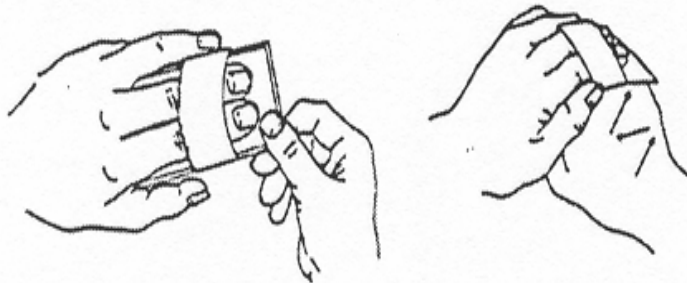


Figure 4-2. Unfolding applicator pad and scrubbing skin on back of hand.

- f. Unfold applicator pad and slip finger(s) into the pad.
- g. Use the entire surface of the applicator pad. Scrub exposed skin. Thoroughly scrub exposed skin of the back of your hands, palm, and fingers until they are completely covered with black powder from the applicator pad.
- h. Switch the applicator pad to another hand and repeat the procedure of the last step.

**NOTE:** Do not discard applicator pad at this time.

**NOTE:** If you were contaminated while you were masked, with hood zipped, and drawstring pulled tight, then stop and discard the applicator pad. Put on your protective gloves. Remove powder with soap and water when operating conditions permit. If, however, you were masked, but the zipper and drawstring were not secure, thoroughly scrub your neck and ears until they are completely covered with black powder (without breaking the seal between your face and mask).

- i. Decontaminate your face.

**CAUTION:** Breathing in a toxic agent may result in serious injury or death. If you need to breathe before you finish decontaminating your face, reseal your mask, clear it and check it, get your breath, and then resume decontaminating procedure.

**NOTE:** Thoroughly scrub the exposed skin of your face until it is completely covered with black powder from the applicator pad. The stars in Figure 4-3 show areas of the face that should be scrubbed with an extra stroke because they are hard to decontaminate.



Figure 4-3. Decontaminating your face.

(1) First; hold your breath, close your eyes, grasp the mask below the chin, and pull the hood and mask away from your chin enough to allow one hand between the mask and your face (see Figure 4-4). Hold the mask in this position until you have completed all of the steps for decontaminating your face.

(2) Scrub up and down across your face beginning at the front of one ear, to the nose, and from the nose to the other ear.

- (a) Scrub across the face to the corner of your nose.
- (b) Scrub an extra stroke at corner of the nose.
- (c) Scrub across the nose and tip of nose to other corner of nose.
- (d) Scrub an extra stroke at corner of nose.
- (e) Scrub across your face to other the other ear.



Figure 4-4. Pulling hood and mask away from chin.

(3) Scrub up and down across the face beginning where you ended at the mouth. Scrub from the other side of the mouth to the other end of your jawbone.

- (a) Scrub across the cheek to the corner of your mouth.
- (b) Scrub an extra stroke at the corner of your mouth.
- (c) Scrub across the nose and tip of nose to other corner of nose.
- (d) Scrub an extra stroke at other corner of the nose.
- (e) Scrub across your face to the other ear.

(4) Scrub up and down across your face beginning where you ended at step 3, chin and other end of jawbone.

- (a) Scrub across and under jaw to chin, cupping the chin.
- (b) Scrub extra stroke at center of your chin.
- (c) Scrub across and under jaw to the end of jawbone.

(5) Turn your hand out and quickly wipe the inside of the mask that touches your face (see Figure 4-5).

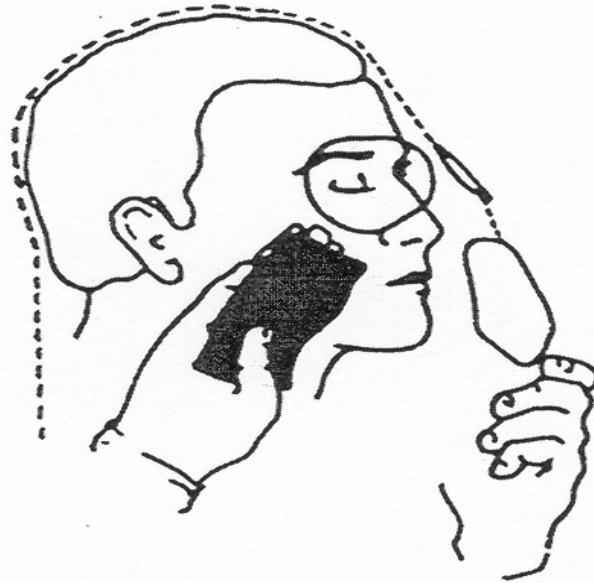


Figure 4-5. Wiping inside of mask.

- (6) Discard applicator pad.
- (7) Immediately seal mask, clear it, and check it.
- j. Remove second decon packet from carrying pouch.

**NOTE:** Any notch may be used to open the packet, however, opening at tear line will place applicator pad in a position that is easier to use.

- k. Tear pouch open quickly at notch.
- l. Remove applicator pad from packet, and discard empty packet.

**NOTE:** Remove applicator pad from packet.

- m. Unfold applicator pad and slip your fingers into the handle (see Figure 4-6).



Figure 4-6. Unfolding applicator pad

- n. Scrub the skin of your neck and ears.

**NOTE:** Thoroughly scrub until completely covered with black powder without breaking the seal between your face and the mask (see Figure 4-7).



Figure 4-7. Scrubbing skin of neck.

- o. Redo your hands. Scrub your hands until they are completely covered with black powder.
- p. Discard the applicator pad.
- q. Put on your protective gloves.
- r. Fasten your hood.

[Continue with Exercises](#)

## EXERCISES, LESSON 4

**INSTRUCTIONS:** Answer the following exercises by writing the missing word or phrase in the blank.

After you have answered all of the exercises, turn to "Solution to Exercises" at the end of the lesson and check your answers. For each exercise answered correctly, reread the lesson material referenced with the solution.

1. Open the decontaminating kit at the \_\_\_\_\_ notch to place the applicator pad in a position that is easier to use.
2. While decontaminating your face, you should not allow the powder to get into your \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.
3. You should be able to decontaminate the skin of your ears and neck without breaking the \_\_\_\_\_ of your mask.
4. When you redo your hands, they should be completely covered with the \_\_\_\_\_.
5. After discarding the applicator pad and putting on your protective gloves, then fasten the \_\_\_\_\_.

Check Your Answers on Next Page

## **SOLUTIONS TO EXERCISES, LESSON 4**

1. tear line (para 4-2c, NOTE)
2. eyes, cuts, or wounds (para 4-2 WARNING)
3. seal (para 4-2n NOTE)
4. black powder (para 4-2o)
5. hood (para 4-2r)

**END OF LESSON 4**