

Chapter 3

Operational Decon

This chapter is divided into two parts. The first part discusses planning considerations before and during execution of an operational decon mission (see Table 3-1). The second part focuses on the methods available to select the best hasty decon procedure according to the factors of METT-T.

Operational decon generally follows immediate soldier skills decon. The objective is to reduce the level of contamination to regenerate needed combat power. Therefore, the unit is able to sustain its mission in a contaminated environment. Operational decon will further reduce the risk of contamination transfer, the spread of contamination, and speed the weathering process by removing much of the gross contamination.

Decontaminate only what is necessary by conducting immediate soldier skills equipment decon before operational decon. Once operational decon is completed, the contamination hazard on the parts of equipment that personnel have contact with is neutralized. So, operator's spraydown combined with operational decon increases the opportunities to conduct unmasking procedures. Operational decon is accomplished primarily by the con-

taminated unit, using assets such as the M12 power-driven decon apparatus, M17 LDS, or firefighter equipment and 65-GPM pumps. Vehicles within the contaminated unit must be identified as contaminated or noncontaminated before arriving at any operational decon station. If the contamination found on the vehicle or equipment is such that it can be neutralized with immediate decon procedures, decontaminate and proceed with the mission. To be most effective, operational decon should be accomplished as soon as possible.

In conjunction with the vehicle washdown, soldiers conduct MOPP gear exchange. The unit, using organic personnel, establishes a MOPP gear exchange site, upwind of the vehicle wash area. Here unit soldiers can remove contaminated MOPP gear and put on the reserve set of MOPP gear carried by the unit. The exchange is normally accomplished by squad-size elements. Unmasking may or may not be possible during this exchange (see FM 3-4). A well-practiced unit standing operating procedure (SOP) will greatly simplify and ease the implementation of operational decon procedures.

Planning

Operational decon requires prior planning for its execution. Several factors need to be considered by the contaminated unit before mission execution. Chapter 1 of this manual establishes operating guidelines for operational decon.

Chemical contamination is usually the most dangerous form of contamination, and it is the most difficult to remove. Procedures used to decontaminate such contamination can also be used for biological contamination, but the decontaminants used to remove chemical contamination are caustic. For radiological, however, only hot, soapy water is required.

These decontaminants are generally useful in reducing the hazards of biological or radiological contamination. The CAM can detect concentrations of nerve (G) and blister (H) agents on equipment surfaces and personnel. If monitoring reveals high concentrations of contamination on equipment and personnel, conduct operational decon to reduce the concentration level to provide temporary relief. Depending on the type and level of contamination, a CAM reading between 0 and 1 bars is considered negligible risk. The M256 Series chemical detector kit will detect chemical agent vapors. Methods and materials for biological and radiological decon are

summarized at the end of each discussion on decon techniques.

When you perform radiological decon, check on the effectiveness of your efforts by using your AN/PDR27 radiacmeter or AN/VDR2, and determine specifically how much radiological contamination remains. Monitor decontaminated equipment one inch from the surface, and determine if contamination levels are low enough to present only negligible risk (0.33 cGyph [rad per hour]). For chemical contamination, use M8/M9 paper, M256A1 kit, and/or CAM to check for effectiveness of decon and/or level of contamination remaining. If only negligible risk levels exist, no further decon is required. MOPP levels can then be lowered for extended periods (if no chemical or biological hazards exist in the area).

Operational decon makes use of two decon techniques: MOPP gear exchange and vehicle washdown. The vehicle washdown technique uses a unit's own assets (unsupported) or with external support (supported).

Operational decon techniques usually are done in a unit's area of operation with support from the battalion level PDDE crew or from the chemical company decon platoon. Operational decon limits liquid or particle contamination spread. This protects uncontaminated areas so they can be used for possible temporary MOPP-level

reduction. Operational decon supports the need for battlefield mobility; its small operational area (about 100 square meters on site) is easy to conceal in forward areas, and the lower water requirements do away with the absolute need to conduct decon near a water source.

Usually, squad-size elements use these two operational decon techniques: vehicle washdown and MOPP gear exchange. Platoons or companies rotate contaminated squad-size elements through the operational decon site one at a time.

Responsibilities

The Contaminated Unit

Squad-size elements and occasionally platoon-size elements conduct operational decon (see Table 3-1). The contaminated unit is responsible for the decon of its soldiers and equipment. The battalion PDDE crew decontaminates equipment with assistance from the contaminated unit.

The Battalion Tactical Operations Center

The tactical operation center (TOC) coordinates operational decon operations. If the battalion has no decon assets or more assets are required, submit requests to the next higher headquarters for needed support. Decon assets may then be made available from higher or adjacent units.

The Battalion PDDE Crew

The PDDE crew comes from personnel and equipment within the battalion's resources. The PDDE is moved, supplied, and operated by the battalion crew.

Although the battalion decon crew provides the expertise and does most of the work for the vehicle washdown, they work under the direction of the contaminated unit's commander or designated representative. Chapter 10 discusses planning factors to determine battalion basic load requirements.

Chemical Company Decon Platoon

Chemical companies can support the efforts of a battalion PDDE crew by sending one decon platoon or platoon (-) to assist in operational decon. The preferred method is to use supporting decon squads to set up separate operational decon sites rather than use multiple PDDEs at one site. This preserves the advantage of small, decentralized operations.

Preparation Phase

The preparation stage, as its name implies, includes all of the things that must be done before any operational decon can take place.

Request

The contaminated unit commander decides to conduct operational decon, and calls the battalion TOC to request support.

Coordination

The TOC directs the battalion decon crew where to meet the contaminated unit. The contaminated unit chooses the location. Decon sites can be preselected and identified in the operation plan/operation order (OPLAN/OPORD). Linkup points are established in the plan or orders, and are revised based on the situation.

Table 3-1. Operational decon responsibility matrix.

Phase		Task	Unit			
			Contaminated Unit	Battalion PDDE Crew	Battalion	Brigade
Planning	Preparation	Request	P		S	
		Coordination			P	S
		Site Selection	P		S	
		Rendezvous	P		S	
		Site Setup	S	P		
	Execution	Site Control and Security	P			
		Processing	P	S		
	Site Clearance	Cleanup		P		
		Marking and Reporting		P		

Legend: P = Primary responsibility, S = Supporting responsibility

Battalion assets may not be available to provide operational decon support. If not, the battalion coordinates with the division (or brigade) for decon support. The contaminated unit generally communicates with the decon crew via liaison personnel for communications, or landline (unit tactical SOP should state which means is used to communicate with decon crew).

Site Selection

The contaminated unit chooses an operational decon site (a place where little preparation is required) in coordination with its battalion. Generally, the contaminated unit has the most complete knowledge of local conditions and is best qualified to select the decon site. Consider the following factors when selecting a decon site:

- Good overhead concealment.
- Good drainage.
- Off the main route, but with easy access for vehicles.
- Wind direction.
- Large enough area to handle vehicle washdown and MOPP gear exchange for a squad-size element (100 square meters per site).
- A water source. Make maximum use of existing facilities, such as car washes and swimming pools. Plan for about 100 to 150 gallons of water for each vehicle (for example, armored personnel carrier). Of course, larger or dirtier vehicles need more water (see Table 10-3, Chapter 10). NOTE: The M12A1 PDDA can carry 450 gallons to a decon site; the M17 LDS (with collapsible bladder) can hold 1,500 gallons, but must be setup and filled up at the decon site.

Rendezvous

The contaminated unit meets the battalion decon crew at the decon site. The contaminated unit's company supply section brings replacement MOPP gear, decontaminants, and skin decon kits to the rendezvous location. This location could be near enemy territory, and the decon crews and company supply section have little, if any, organic security. So, local field SOPs should describe the security and rendezvous procedure for all parties involved to avoid confusion, delay, or confrontation with enemy forces.

Site Setup

The battalion decon crew will set up a the vehicle washdown area. An operational decon site implies minimal setup and preparation. Site setup requires positioning the PDDE along the roadway, ready to dispense hot, soapy water. The vehicle washdown process basically consists of contaminated vehicles moving forward into a site to be washed down (removing gross contamination) and then moving out. The company supply section provides needed supplies and returns to the company area. Additionally, two soldiers from the contaminated

unit set up a MOPP gear exchange site. Prepare MOPP gear exchange at a clean site 50 meters upwind of vehicle washdown. The commander may also decide to conduct MOPP gear exchange after the completion of the mission (see FM 3-4). Both the vehicle washdown and MOPP gear exchange operations should operate concurrently. If water for the M12A1 PDDA has been preheated, preparation for vehicle washdown should take no more than ten minutes (this is a guideline).

Preparation for vehicle washdown using the M17 LDS will take more time if the water bladder must be filled. (NOTE: If METT-T allows, vehicle crew/operators may remove any vegetation used as camouflage from the vehicle and use shovels or similar equipment to remove large amounts of mud. This could be done before the vehicle enters the washdown lane at the hasty decon site).

Execution Phase

This phase is the actual conduct of the two operational decon techniques: MOPP gear exchange and the vehicle washdown.

Site Control and Security

Vehicle commanders maintain proper intervals as they move their vehicles through the site. Vehicle operators maintain visual contact with one another to know when to move from concealment to the washdown area. There is only one station in the vehicle washdown technique. The PDDE operator gives a signal when vehicles are required to move into position. All personnel in armored vehicles should stay buttoned up within their vehicles while waiting in the marshaling area. Personnel in wheeled vehicles should dismount before washdown to avoid getting wet. Units will provide their own security as MOPP gear exchange and vehicle washdown is in progress.

Processing

Each vehicle receives a two- to three-minute vehicle washdown with hot, soapy water from the PDDE. Following this, the vehicle moves to the MOPP gear exchange area, if elected by the unit commander. Soldiers dismount and conduct MOPP gear exchange as a squad or combat vehicle crew.

This technique is done by squads or crews so that leaders can control the rate of overgarment exchange, and ensure adequate stocks of overgarments at company level are maintained and accounted. Two soldiers can work as a buddy team, or a soldier can do the technique by himself. However, when squad leaders supervise, they can prevent unnecessary exchanges of MOPP gear by using the CAM (see TC 3-4-1).

When finished, soldiers mount their vehicles and move to their new battle positions. For planning purposes, the vehicle washdown site will process one vehicle every 2 to 3 minutes; and MOPP gear exchange will take ap-

proximately 30 minutes. For a squad-size element, estimate 45 to 60 minutes for vehicle washdown and MOPP gear exchange, if both operations are executed concurrently. Using the supported operational decon method, output could increase up to six times the amount of vehicles normally processed.

Vehicle Washdown

Operational decon sustains the contaminated force by limiting transfer and spread of contamination. This may allow temporary MOPP reduction. The decon option used will depend on METT-T.

Soldiers use the PDDE to conduct vehicle washdown. If decon assets are available and the mission permits, it is most effective to conduct vehicle washdown between one to six hours after contamination. This action is in consideration of the physical and psychological degradation of the soldier/crew to perform a mission (see Chapter 1, Equipment Limitations). For further information see FM 3-4. Operational decon should be done as soon as it is practical. The longer you wait to remove or neutralize contamination, the harder it will be to do so. Also, the longer you wait, the more opportunity there will be for agent to spread and make contamination problems worse. Generally, sufficient decon assets may not be immediately available for operational decon because they may be committed elsewhere on the battlefield. Even if vehicle washdown is delayed, conducting operator spraydown and removing gross contamination will speed weathering and limit the transfer and spread of contamination.

The options for vehicle washdown technique are: supported and unsupported (See Chapter 1).

Operational decon is usually done at forward positions normally near the contaminated squad, platoon, or at a location between alternate fighting positions. The site requires little, if any, preparation. At that location, a battalion-level PDDE crew or platoon (-) from a chemical unit moves forward to decontaminate the vehicles of a contaminated squad or platoon.

MOPP Gear Exchange

During the MOPP gear exchange, soldiers change their contaminated MOPP gear for new, uncontaminated gear. The squad or platoon is responsible for conducting its own MOPP gear exchange at assembly area of the operational decon site. Decontaminants and chemical suit replacements are provided by the contaminated unit supply vehicle near the decon site or its forward support battalion elements.

MOPP gear exchange removes nearly all liquid or solid contamination from soldiers and their individual equipment. When soldiers have little, if any, vapor hazards on themselves, they may use hazard-free areas to temporarily unmask to eat, drink, and rest. Before unmasking and lowering of MOPP levels for temporary relief, conduct

unmasking procedures using the CAM or M256-series chemical detector kit (see TC 3-4-1, STP 21-24, or FM 3-4 for unmasking procedures).

These techniques do not guarantee conditions to safely allow unmasking on or near equipment. However, soldiers may move upwind of vapor dirty equipment into a clean area or collective protection shelter, check for contamination, and then briefly unmask. Conduct continuous contamination checks and monitoring to ensure you stay in clean areas. Use M256 kit and check every 15 to 20 minutes. Use CAM every 5 minutes. Use the CAM and M256-series kit in conjunction with unmasking procedures.

Every type of unit (combat, combat support, and combat service support) must develop its own SOP for obtaining temporary relief from MOPP4, based on its own equipment and missions. Standardize those methods when possible and publish them in unit field standing operating procedures (FSOPs). Even when methods have been standardized, every operation is unique. You must do the following:

- Recognize and understand contamination hazards and avoid contamination when possible.
- Protect yourself and your equipment when contaminated.
- Know the capabilities and limitation of your MOPP gear.
- Know how to neutralize or remove the contamination hazards.
- Do only as much decon as you need to continue your mission.

For operational and logistical purposes, units should plan to conduct vehicle washdown and MOPP gear exchange concurrently between one to six hours of becoming contaminated. This reduces degradation and improves a unit's ability to perform its mission. Decontaminants and replacement MOPP gear are provided by a company supply vehicle near the decon site.

MOPP gear exchange and vehicle washdown are best employed by squad-sized or platoon-sized elements. When larger elements try to process through a operational decon site, they lose many of the benefits of a small decentralized operation. Benefits of a squad- or platoon-sized decon operation include:

- Tailored decon operations are flexible and responsive to small unit needs.
- Small, speedy operations are more easily concealed in one location near the forward area.
- A water source may not be needed at the decon site because most PDDEs have a water-carrying capability to support squad-sized elements.

Units may divide into squad-sized elements for operational decon, but additional decon support still may be required. Decon platoons from a chemical company can provide this additional support. They can reinforce the efforts of a battalion PDDE crew. See Figure 3-5.

Site Clearance Phase

Although the operational decon operation is done rapidly with little site preparation, these areas will be contaminated when the operation is completed. This could be a hazard to friendly forces reoccupying the area.

Cleanup

METT-T will dictate the cleanup requirements in the vehicle washdown area. The battalion PDDE crew clean up the MOPP gear exchange area. They bury or burn the contaminated refuse and retrieve any unused decontaminants. Burning will cause a downwind vapor hazard. Burying is the preferred method of disposal of contaminated waste. If you burn it, notify the battalion headquarters they should notify any units that may be affected by the vapor hazard. If time and resources permit, boots and gloves can be recycled in accordance with Station 4 of DTD (Chapter 4).

Prepare a downwind vapor hazard prediction and notify affected units before burning. The PDDE crew must control contamination runoff during the execution of operational decon. The PDDE crew should move the PDDE a few meters away from the vehicle washdown area and wash the decon equipment, including hoses, after the operation is completed. Wet weather gear or TAP aprons should be decontaminated with STB slurry and retained for future use. If MOPP gear exchange is done at a different location, the contaminated unit will be required to clean up after itself.

Marking and Reporting

The battalion PDDE crew marks the operational decon site with standard NBC warning markers and reports the contaminated area using the NBC 5 report. Thus, friendly forces can avoid the area.

Operational Decon Checklist

The following sample checklist (Figure 3-1) can be used by battalion chemical personnel for planning operational decon operations:

Methods

It is important to remember that performing operator spraydown prior to hasty decon will decrease the contamination transfer and increase the survivability of the crew. Operational decon can be conducted using unsupported or supported methods. Unsupported operational decon uses the unit's own resources. Supported opera-

tional decon uses chemical company assets to support a contaminated unit to speed up the decon process.

Unsupported Operational Decon

Units use their organic equipment and personnel to operate vehicle washdown. Equipment used should have

1	Decon assessment	If the battalion has no decon assets, request assistance from the next higher headquarters for needed support.
2	Coordination	Battalion chemical section conducts coordination with contaminated unit on where to meet. The decon should be done between one to six hours after becoming contaminated.
3	Site selection	The contaminated unit chooses the decon site in coordination with the battalion. Consider the following items when selecting a site: <ul style="list-style-type: none"> • Off main route but easy access • Large enough area, (100 square meters per site for a squad-size element) • Good overhead concealment • Water source, (plan for 100 gallons per vehicle) • Good drainage
4	Rendezvous	Ensure the battalion decon crew knows where to meet the contaminated unit, and site location for set up.
5	Site setup	Ensure the PDDE are positioned properly and ready to dispense hot, soapy water. Ensure that the contaminated unit operates the MOPP gear exchange at the same time as the vehicle washdown.
Continued		

Figure 3-1. Sample operational decon checklist.

Figure 3-1 continued.

6	Site control and security	Ensure the drivers of the contaminated vehicles know when to move into position at the washdown location. Ensure the contaminated unit has provided site security.
7	Processing	Ensure the decon NCOIC is processing vehicles at a rate of three minutes per vehicle. Also ensure soldiers are going through the MOPP gear exchange, if needed.
8	Cleanup	Decon NCOIC ensures the MOPP gear exchange area is cleaned up.
9	Marking and reporting	Decon NCOIC has his team properly mark the decon site and send NBC 5 report forward.

water pressure equal to or greater than 60 to 120 pounds per square inch (PSI). This amount of water pressure can remove most gross contamination within the provided time (two to three minutes per vehicle).

Before vehicle washdown, contaminated units conduct operator spraydown to increase decon effectiveness. A combination of equipment may be used to conduct operational decon. For example, M12A1 PDDA, M17 LDS, and/or firefighting equipment could be used. Ensure that water pressure will range from 60 to 120 PSI, the pressure rate at which most gross contamination can be removed. The siphon injector nozzle should be used for operational decon—it increases the water pressure, has a larger area coverage, and allows for the use of soap.

Depending on the availability of equipment, METT-T, and the tactical situation, units have the option to select one of the following for vehicle washdown:

- One-lane washdown.
- Two-lane washdown.

One-lane washdown

Vehicle washdown is conducted as far forward as possible, and is done by the battalion decon crew (see Table 3-2 and Figure 3-2, on the next two pages). Vehicle washdown is most effective if started within one hour after contamination. Wash each vehicle with hot, soapy water for two to three minutes. Because speed is important and detection is difficult, do not check vehicle for contamination after vehicle washdown. Remove only gross contamination.

Two-lane washdown

This process is conducted as far forward as possible and is done by the battalion decon crew. Vehicle washdown is most effective if started within one hour after contamination. When using two M17 LDS or other combinations of decon equipment, two-lane operational decon speeds up the process (see Table 3-3 and Figures 3-3 and 3-4). Vehicles are washed with hot, soapy water

for two to three minutes. Do not check vehicles for contamination after vehicle washdown. Remove only gross contamination. Set the two washdown points a minimum of 50 meters apart. Each washdown point will be considered a separate lane. A control point may be required to control traffic through both lanes.

Supported Operational Decon.

For supported operational decon, the decon platoon or platoon (-) will support the mission. As with unsupported operational decon, different types or combinations of equipment may be used to support vehicle washdown. When this method is employed, the chemical platoon leader/platoon sergeant must consider METT-T and the tactical situation. Coordination with the supported unit is required for the placement of separate, dispersed operational decon sites within a small area. A series of options are available to the contaminated unit based on resources available to conduct decon and the current tactical situation. Support can be furnished using two methods:

- Two-lane washdown.
- Dispersed operational decon.

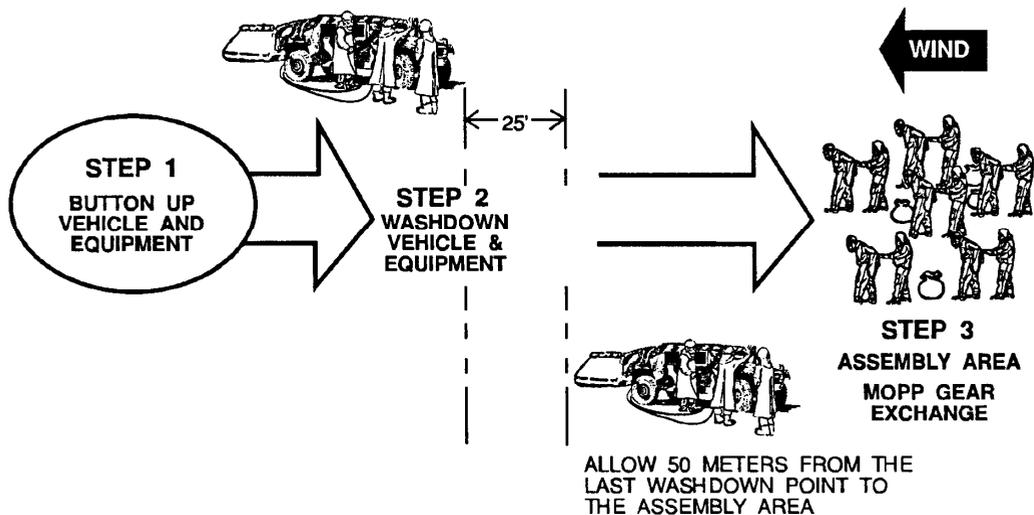
Two-lane washdown

The chemical platoon supports the mission as far forward as possible. Two-lane washdown must use dispersion to avoid a large concentration of troops in one area. Vehicle washdown is most effective if completed within one to six hours after contamination. If washdown is not completed within this time, the unit would do better to perform thorough decon. The vehicles are washed with hot, soapy water for two to three minutes (see Chapter 10, Table 10-3, for estimated water consumption). Do not check vehicles for contamination after vehicle washdown, and remove only gross contamination (see Table 3-4).

Table 3-2. Unsupported one-lane washdown.

Steps and Risks	Equipment	Procedures
<p>Step 1. Button up vehicle/equipment. Performing this step prevents contamination from being washed or splashed into uncontaminated areas.</p> <p>Risks. Failure to perform this step may result in contamination being washed into uncontaminated areas, subjecting crew and maintenance personnel to hazards.</p>	<p>None</p>	<p>Equipment crew/operators close all access doors, hatches, windows, and other openings before washdown. Put muzzle covers on weapons. Nonessential personnel can dismount and begin MOPP gear exchange. They then act as "buddies" for essential crew/operators.</p> <p>NOTE: Ensure that vehicles equipped with over pressurized systems are operating with system on.</p>
<p>Step 2. Washdown vehicle/equipment. Performing this step limits spread of contamination, minimizes hazard, and enhances weathering to make detailed equipment decon easier and faster.</p> <p>Risks. If you do not do this step, expect casualties from contact hazards. Spreading or transferring the hazard most likely will increase. Weathering of the hazard will be slowed. You will not be able to reduce MOPP level immediately because an after-vehicle washdown check for contamination is not made. (See Decon in Combat, Chapter 1, for when to unmask for brief periods.)</p>	<p>Use for all forms of contamination:</p> <ul style="list-style-type: none"> ● One PDDE. ● Adequate fuel for water heater (if available) and pump unit. ● Adequate water supply (about 100 to 150 gallons per vehicle. ● Liquid detergent to mix with water (see Appendix J). 	<p>Chemical, biological, and radiological: Two soldiers from the battalion PDDE crew operate washdown equipment. A third soldier supervises. Soldiers must wear toxicological agent protective (TAP) aprons or wet weather gear worn over MOPP gear to keep MOPP gear from becoming saturated. Soldiers spray hot, soapy water (under pressure) from PDDE onto equipment surfaces. This removes, neutralizes, or destroys most of the gross contamination trapped in dirt and mud. Unheated soapy water or plain water may be used, if necessary, but is less effective than hot, soapy water. Start at the top decks of vehicles and wash downward.</p>
<p>Step 3. Vehicles move into assembly area.</p>		<p>Exchange chemical suit.</p>





Unsupported one-lane washdown with one lightweight decontaminating system (shown above) and with two lightweight decontaminating systems (below).

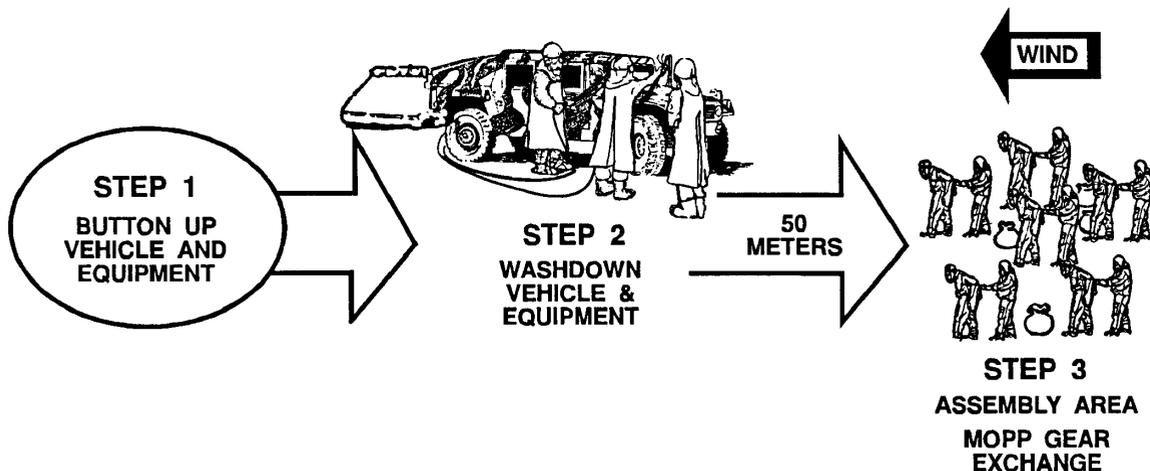


Figure 3-2. Unsupported one-lane washdown.

Table 3-3 . Unsupported two-lane washdown.

Steps and Risks	Equipment	Procedures
<p>Preaction: Unit tactically disperses in concealed marshalling area. Makes contact with control point for final orders. Control point monitors and supervises rate of movement into lanes to prevent congestion.</p>	<p>Watch</p>	<p>One soldier from the battalion decon crew. Every three minutes two vehicles will be released from the marshalling area. On signal vehicles will proceed to the decon station in their respective lane.</p>
<p>Step 1. Button up vehicle/equipment. Performing this step prevents contamination from being washed or splashed into uncontaminated areas. This step applies for both lanes.</p> <p>Risks. Failure to perform this step may result in contamination being washed into uncontaminated areas, subjecting crew and maintenance personnel to hazards.</p>	<p>None</p>	<p>Equipment crew/operators close all access doors, hatches, windows, and other openings before washdown. Put muzzle cover on weapons. Nonessential personnel can dismount and begin MOPP gear exchange upon commander's orders. They then can act as "buddies" for essential crew/operators.</p> <p>NOTE: Ensure that vehicles equipped with overpressurized systems are operating with systems on. No MOPP gear exchange is required if crew/operators are inside vehicle and have not been exposed to any contamination.</p>
<p>Step 2. Wash down vehicles/ equipment. Crews/drivers remain in vehicles. Sprayers use cross diagonal technique for two to three minutes, removing gross contamination. This technique avoids water splashing the crew members. Performing this step limits spread of contamination, minimizes hazard, and enhances weathering to make detailed equipment decon easier and faster.</p>	<ul style="list-style-type: none"> ● Adequate fuel for water heater (if available) and pump unit. ● Adequate water supply (about 100 to 150 gallons per vehicle). ● Liquid detergent to mix with water (see Appendix F). <p>NOTE: Use M12 PDDA, M17 LDS, 65-GPM pump, fire-fighting equipment, and/or combination.</p>	<p>Chemical, biological, and radiological: Two soldiers per lane from the battalion decon crew wash down equipment. A third soldier supervises. Soldiers must wear TAP aprons or wet weather gear worn over MOPP gear to keep MOPP gear from becoming saturated. Soldiers spray hot, soapy water (under pressure) from PDDE onto equipment surfaces. This removes, neutralizes, or destroys most of the gross contamination trapped in dirt and mud. Unheated soapy water or plain water may be used, if necessary, but is less effective than hot, soapy water. Start at the top decks of vehicles and wash downward.</p>
<p>Step 3. Vehicles move into assembly area. MOPP gear exchange is determined by the commander.</p>		<p>Exchange MOPP suit.</p>

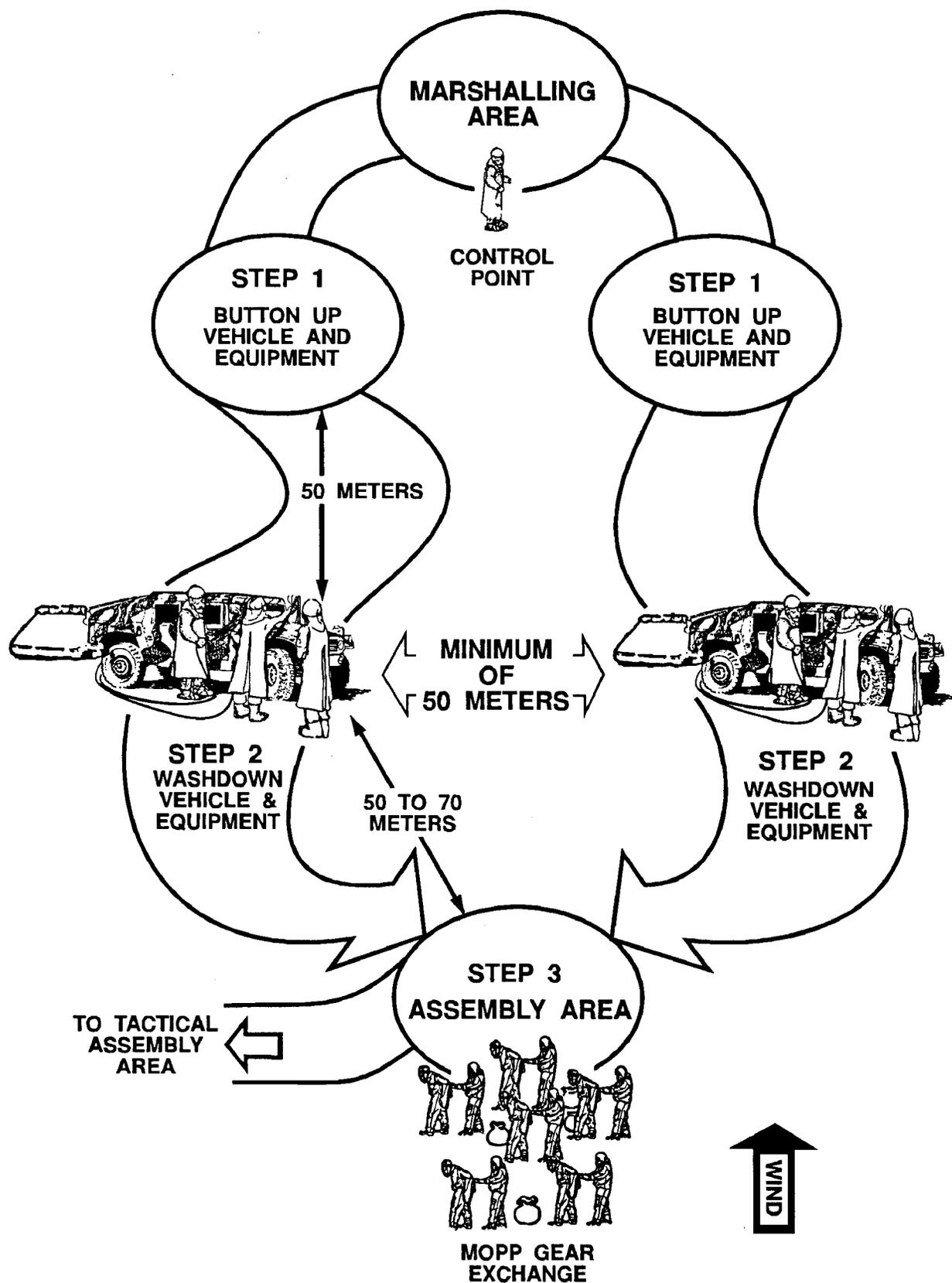


Figure 3-3. Unsupported two-lane washdown.

Table 3-4 . Supported two-lane washdown.

Steps and Risks	Equipment	Procedures
<p>Preaction: Unit tactically disperses in a concealed marshalling area. Make contact with control point for final instructions. Control point monitors and supervises rate of movement into lanes to prevent congestion.</p>	<p>Watch</p>	<p>One soldier from the battalion decon crew required. Two vehicles will be released from the marshalling area every three minutes. On signal vehicles will proceed to the decon station in their respective lane.</p>
<p>Step 1. Button up vehicle/equipment. Performing this step prevents contamination from being washed or splashed into uncontaminated areas. This step applies to both lanes.</p> <p>Risks. Failure to perform this step may result in contamination being washed into uncontaminated areas, subjecting crew and maintenance personnel to hazards.</p>	<p>None</p>	<p>Equipment crew/operators close all access doors, hatches, windows, and other openings before washdown. Put muzzle covers on weapons. Nonessential personnel can dismount and begin MOPP gear exchange, upon commander's orders. They then act as "buddies" for essential crew/operators.</p> <p>NOTE: Ensure that vehicles equipped with overpressurized systems are operating with systems on.</p>
<p>Step 2. Wash down vehicles/equipment. Crews/drivers remain in vehicles. Vehicles stop by the first wash. Sprayers decon the half of the vehicle/equipment facing their side, for one and one-half minutes. Vehicles then move to the second wash where sprayers will decontaminate the other half of the vehicle/equipment for one and one-half minutes.</p>	<ul style="list-style-type: none"> ● 3 M17 LDS. ● Adequate fuel for water heaters and pump units. ● Adequate water supply (approximately 100 to 150 gallons per wash point per vehicle). ● Liquid detergent to mix with water. <p>NOTE: Use M12 PDDE, M17 LDS, 65-GPM pump, fire-fighting equipment-, and/or combination.</p>	<p>Chemical, biological, and radiological: Four soldiers from the chemical decon platoon wash down equipment. A fifth soldier supervisors. Soldiers must wear TAP aprons or wet weather gear worn over MOPP gear to keep MOPP gear from becoming saturated. Soldiers spray hot, soapy water (under pressure) from PDDE onto equipment surfaces. Start at the top decks of vehicles and wash downward.</p>
<p>Step 3. Vehicles move into assembly area. MOPP gear exchange is determined by the commander.</p>		<p>Exchange MOPP suit.</p>

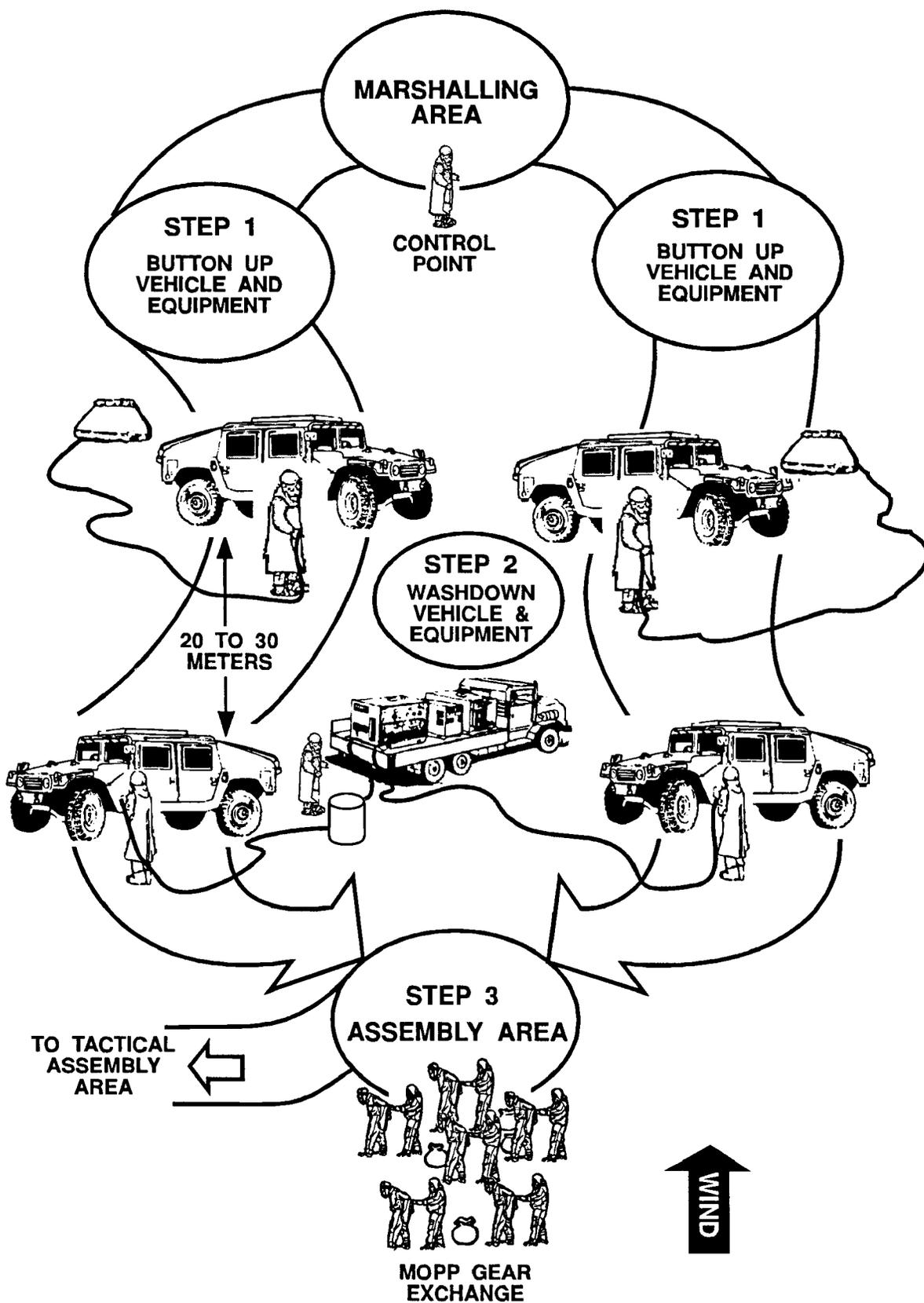


Figure 3-4. Supported two-lane washdown.

Dispersed operational decon

Dispersed operational decon requires a large area. Three dual lane decon points are dispersed over an area sufficient in size to minimize vulnerability (see Figure 3-5). Any method of operational decon previously described can be used. The resources and unit capabilities to obtain water are critical for this kind of

operation. Dispersed operational decon could decon six vehicles every three minutes; however, if the commander also decides to conduct MOPP gear exchange, planning for three assembly areas will be required. One decon platoon is capable of operating three operational decon operations at one time.

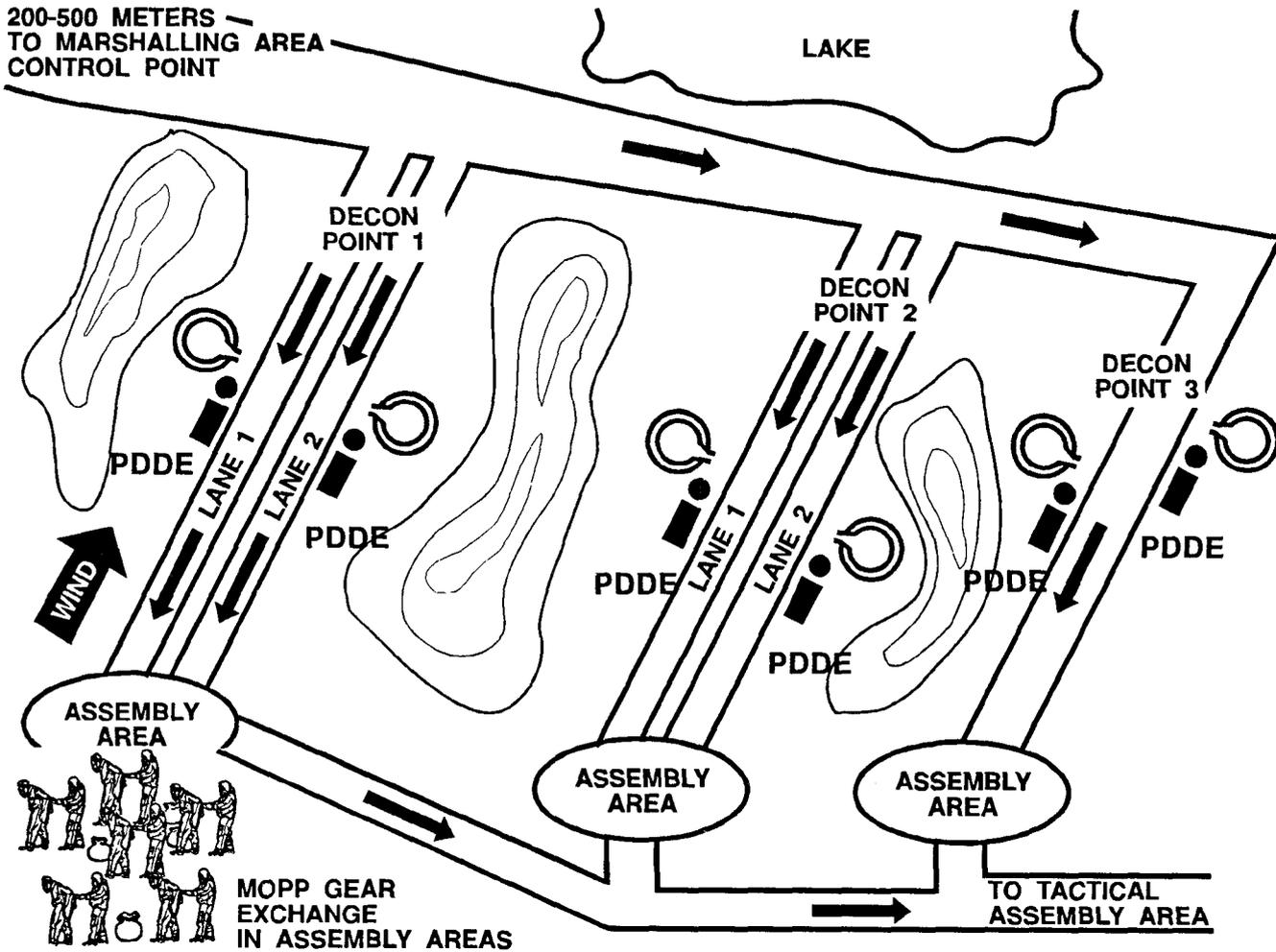


Figure 3-5. Dispersed operational decon.

MOPP Gear Exchange, BDO

There are three types of procedures for MOPP gear exchange during operational decon: buddy team, triple buddy system, and individual MOPP gear exchange.

Unit commanders decide whether or not to conduct MOPP gear exchange during operational decon. However, the rate of degradation of personnel peaks about six hours after being in full MOPP (see Chapter 1). This factor should be considered before continuing the mission without MOPP gear exchange. Before MOPP gear exchange, soldiers will be checked, using the CAM, to determine who needs to exchange overgarments (see TC

3-4-1 for use and procedures for CAM). This will prevent an unnecessary use of overgarments stock and speed up the MOPP gear exchange.

Buddy Team Method

MOPP gear exchange using the buddy team method is best managed with squad-sized elements. Two soldiers can do this technique, but squad leader supervision is recommended. MOPP gear exchange does not begin until replacement overgarments are available.

Individual fighting equipment is decontaminated, and the squad members pick up their replacement overgarments. The squad forms a circle around a lead team. Typically the lead team is comprised of the squad leader and another soldier. The soldiers are paired into buddy teams. The buddy teams are spaced around the circle, with 1 to 3 meters between teams. Control contamination spread by putting contaminated overgarments and discarded decon towelettes in one pile.

The soldiers in each buddy team alternate as they go through step 1. At step 2, one team member proceeds through step 8 before alternating. This will ensure there is no spread of contamination onto skin or undergar-

ments. See Table 3-5 for detailed instructions on this method.

If at any time during the procedure you suspect you have spread contamination onto your skin or undergarments, stop. Decontaminate immediately the suspected area with your skin decon kit. After the area is decontaminated, proceed with the MOPP gear exchange.

All contaminated waste is properly disposed of. If possible, place the waste in a hole, spread STB over the waste before covering with earth. Mark the area using the correct warning sign. At a minimum, place the waste in double trash bags. Seal the bags with tape or other material. Mark the area.

Table 3-5. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 1. Decon gear. Performing this step removes gross contamination from individual gear (weapon, helmet, load-bearing equipment, and mask carrier).</p> <p>Risks. If you do not do this step, you will transfer contamination from your individual gear to your new MOPP gear. You will have to change MOPP gear within 24 hours, even if you do not receive any more contamination. If chemical/biological contamination is not removed from individual gear, the weathering process will be delayed (see FM 3-4). If radiological contamination is not removed, your radiation exposure may increase over time, prolonging the time you must remain in MOPP gear.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Four long-handled brushes. ● Large piece of plastic (poncho or similar material). <p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One 5-gallon container STB dry mix. <p>Radiological: None.</p>	<p>Chemical/biological: If the personnel armor system, ground troops (PASGT) helmet is worn, remove and discard the chemical protective helmet cover. Brush or rub STB into personal equipment. Brush or rub STB dry mix onto the hose if wearing the M24, M25A1, or M42 mask. Gently shake off any excess. Set aside gear on an uncontaminated surface.</p> <p>Radiological: Shake or brush contamination off.</p>
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove his overgarment trousers and overboots later. It also allows for the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting tool. 	<p>Unfasten the shoulder straps on the hood and pull them over the shoulder and reattach them to the Velcro® fastener (A). Loosen drawcord on hood of the protective mask (B). Step 2 procedures continue on next page.</p>

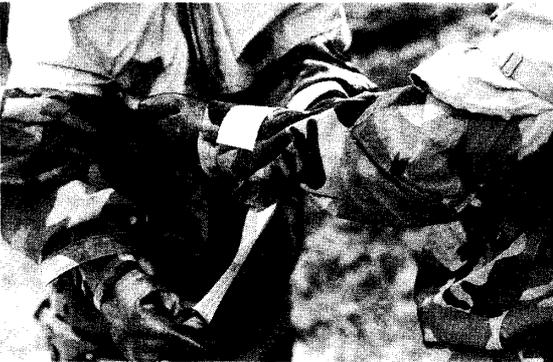


A.



B.

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
Step 2. Prepare for decon (continued).		Remove M9 paper (C). Untie drawcords on trouser legs of the overgarment, unzip the trouser legs, and roll a cuff in the trouser legs (D). Ensure that the cuff does not come above the top of the overboot. Unfasten or cut the fasteners on the green vinyl overboot (GVO) or untie/cut the laces on the protective overboot. NOTE: A soldier can do this step by himself or with the help of his buddy.



C.



D.

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood. The squad leader and companion or two personnel from the squad stand in the center of a circle. They supervise the other teams while they go through the technique themselves.</p> <p>Risks: Chemical/biological contamination. If this step is not done, small amounts of chemical contamination may still be on the mask and hood. You will risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 or two M295 skin decontaminating kits per person. 	<p>Chemical/biological: Using the M258A1 or M295 skin decon kit, decontaminate the hood and exposed parts of your buddy's mask. Start with the mask eye lens outserts, wiping from the top down. Then decon the rest of the hood, wiping from the top of the head to the bottom of the hood (E). When you have finished decontaminating your buddy's mask, decontaminate your gloves in preparation for rolling your buddy's hood. (NOTE: When decontaminating the mask, do not press so hard that you break your buddy's seal). Leave the zipper on the hood closed. Grab the straps where they connect to the back of the hood and lift the hood straight up off the buddy's shoulders. Pull the hood up and over the head (F) until the bottom of the back of the hood is to the top of the eye lens outserts, but not over. Check for contamination on the underside of the hood edges and decon, if necessary. Roll your buddy's hood. Put one tuck (about two inches) on the forehead, then begin rolling (tightly) at both temples simultaneously by tucking in with the thumbs as you roll toward the bottom of the zipper (G). Step 3 continues on facing page.</p>

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood (continued).</p> <p>Risks: Radiological contamination. If you do not do this step, excessive radiation exposure could occur from contaminants on the hood and mask. You also risk spreading contamination to your skin during the undressing.</p>	<p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3-gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One IDK kit per person, if water is not available. 	<p>M40 mask. The contaminated soldier holds the mask firmly in place to avoid breaking the seal. Make the rolls from each side of the hood come to a point at the bottom of the zipper, forming a V. Put a half twist in the V, forming the two sides into a tail. Then tuck the tail between the upper part of the canister (H) and mask. (Tie tail over and under the hose for the M42.)</p> <p>Radiological: Wipe your buddy's mask and hood with sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. The buddy does his or her own gloves. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use IDK skin decon kit ONLY if no water is available. If water supply is limited, soldier may use some of his drinking water (from his canteen) with a wet sponge or cloth. Do not reverse roles. Only your buddy's hood will be decontaminated and rolled at this time. Table 3-5 continues on next page.</p>



E.



F.



G.



H.

Table 3-5 continued. MOPP gear exchange (buddy team method).

Steps and Risks	Equipment	Procedures
<p>Step 4. Remove overgarment/overshoes. Performing this step limits the spread of agents and helps prevent agents from penetrating through to skin or undergarments.</p> <p>Risks. If you do not do this step, the agent will penetrate your overgarment. The more agent on the overgarment, the quicker it will penetrate. If you do not do this step properly, you risk spreading the agent onto your undergarments or skin, causing casualties.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (recommend plastic bags). 	<p>Chemical/biological: Unfasten the three snaps on the back of the overgarment trousers. Do this by grasping the outside overgarment jacket and unfastening the snaps individually (I). Untie the drawcord at the bottom of the jacket. Unfasten the Velcro® at the wrist and then refasten (J). Unfasten the Velcro® closures over the zippered front of the jacket and unzip the jacket (K). Grasp the jacket at the shoulders. Instruct the buddy to make a fist. Pull the jacket down and away from the soldier, ensuring that the black part of the jacket isn't touched (L). Lay the overgarment jacket on the ground, black side up. (It will be used for the buddy to stand on later.) Carefully unfasten and unzip the trousers. Do not loosen the waist tabs. Instruct the soldier to break the seals on the overshoes by alternately stepping on the heels and pulling up his foot (M). Grasp the trousers and pull them down to the knees. Instruct the soldier to walk out of the trousers/GVOs, taking care not to step on the contaminated side of the overgarment (N). If wearing overboots, remove trousers first, then step out of overboots (with buddy's help) onto the black side of jacket. The soldier should step onto the jacket wearing his mask, battledress uniform (BDUs), and gloves. Table 3-5 continues on facing page.</p>



I



J



K



L



M



N

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 5. Remove gloves. Performing this step removes contaminated gloves and limits the spread of contamination.</p> <p>Risks. If this step is not done, it is quite probable the agent will be transferred to clean overgarments (Step 6). Contamination may get on your skin because gloves tear, rip, puncture, and wear out.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (from Step 4). 	<p>Hold finger tips of the glove and partially slide the hand out (O). When fingers of both hands are free, hold arms away from body and let gloves drop off (P).</p>
<p>Step 6. Put on overgarment. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step properly, you risk contaminating your new overgarment or your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overgarments per person (correct size). 	<p>Open package containing new overgarment, but do not touch the garment. Have your buddy reach into the package and pull out the overgarment without touching the outside of the package. Your buddy puts on the trousers and jacket (Q), fastens overgarment, and leaves trouser legs open. Do not reverse roles. Only your buddy will put on clean overgarment at this time. Table 3-5 continues on next page.</p>



O



P



Q

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 7. Put on overboots and gloves. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step, you risk becoming a casualty by touching contamination remaining on unit equipment. You risk spreading contamination to your skin or undergarments. You risk contaminating your regular combat boots.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set chemical protective overboots per person. ● One set chemical protective gloves per person (correct size). ● M9 paper. 	<p>Pick up a package of clean overboots and open it without touching the overboots inside. Have your buddy reach into the package (without touching the outside of package), remove the GVO/overboots, put them on, and fasten trouser legs. Open a package of clean gloves without touching the gloves. Have your buddy remove them from the package (without touching the outside of package) and put them on (R). Put on M9 paper (S). Do not reverse roles. Only your buddy will put on clean overboots at this time.</p>
<p>Step 8. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step, you risk transferring contamination to the inside of the hood..</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One decon 1 and one decon 2 wipe packet from M258A1 kit. ● One M295 SDK decon packet. 	<p>Decontaminate your rubber gloves with an M258A1 or M295 skin decon kit. Once gloves are decontaminated, unroll your buddy's hood and attach the straps and tighten neck cord. Check all zippers and ties on the hood and overgarment to ensure they are closed.</p>



R



S



T

**Reverse roles. Repeat steps 2 through 8.
This time have your buddy help you through the steps.**

Table 3-5 continued. MOPP gear exchange (buddy team method).		
Steps and Risks	Equipment	Procedures
<p>Step 9. Secure gear. Performing this step prepares the soldier to return to battle.</p> <p>Risks. None.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One chemical protective helmet cover per person 	<p>Secure individual gear (T). Put it back on and move to assembly area. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet. Use buddy system to check fit of all secured gear.</p>
<p>This is the last step of MOPP gear exchange (buddy team method).</p>		

Triple Buddy Method.

This method is used by soldiers equipped with the tankers or aviators mask. A different procedure is required because of the hose attached to the filter canister. A third soldier is needed to hold the filter canister and

hose to prevent the transference of contamination to the soldier undergoing procedure. This method reduces the risk of transferring contamination onto skin or undergarments. See Table 3-6 for detailed instructions on this method.

Table 3-6. MOPP gear exchange (triple buddy method) M24, M25A1, or M42/M43 (Aviation or Armor).		
Steps and Risks	Equipment	Procedures
<p>Step 1. Decon gear. Performing this step removes gross contamination from individual gear (weapon, helmet, load-carrying equipment, and mask carrier).</p> <p>Risks. If chemical/biological contamination is not removed from individual gear, the hazard will remain and possibly be transferred to new MOPP gear. You may have to change MOPP gear within 6 hours with the chemical protective overgarments (CPOGs) or within 24 hours with the BDOs, even if you do not receive any more contamination.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Four long-handled brushes. ● Large piece of plastic (poncho or similar material). <p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One 5-gallon container STB dry mix. <p>Radiological:</p> <ul style="list-style-type: none"> ● Hot, soapy water. 	<p>Chemical/biological. If the PASGT helmet is worn, remove and discard the chemical protective helmet cover. Rub and/or brush STB into individual equipment (helmet, mask carrier). Brush or rub STB dry mix onto the hose (if wearing the M24, M25A1, M42/M43 mask). Gently shake off any excess. Set aside gear on an uncontaminated surface.</p> <p>Radiological. Brush or wipe radiological contamination from your individual gear. Wash with warm, soapy water (if available). Set aside to dry on an uncontaminated surface (plastic, poncho, or similar material).</p>
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove his overgarment trousers and overboots later in the procedure. It also allows for the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting tool. 	<p>Unfasten shoulder straps on hood and pull them over the shoulders and reattach them to the velcro fastener (see photo A, page 3-13). Loosen drawcord on hood of protective mask (see photo B, page 3-13). Tie off the microphone cord to the hose of the mask (A). Step 2 procedures continue on next page.</p>



A

**Table 3-6 continued. MOPP gear exchange (triple buddy method)
M24, M25A1, or M42/M43 (Aviation or Armor).**

Steps and Risks	Equipment	Procedures
Step 2. Prepare for decon (continued).		Remove M9 paper from the overgarment (see photo C, page 3-14). Untie/cut drawcords on trouser legs of the overgarment. Unzip trouser legs and roll a cuff in the trouser legs, ensuring that the cuff does not come above the top of the overboot (B). Unfasten or cut the fasteners on the GVO or untie the laces on the protective overboot (C). NOTE: The soldier can do this step by himself or with help from his buddy.



B



C

**Table 3-6 continued. MOPP gear exchange (triple buddy method)
M24, M25A1, or M42/M43 (Aviation or Armor).**

Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood. Use three soldiers to perform this technique. The squad leader and companion or two personnel from the squad stand in the center of a circle. They supervise the other teams while they go through the technique themselves.</p> <p>Risks: Chemical/biological. If this step is not done, small amounts of chemical decontamination may still be on the mask and hood. You will risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 or two M295 skin decontaminating kits per person. 	<p>Chemical/biological. If wearing the M24, M25A1, or M42/M43 mask, use a buddy team (three buddies). Using the M258A1 or M295 skin decon kit, decontaminate the hood and exposed parts of your buddy's mask (including the canister and hose of the M24, M25A1, or M42/M43 mask). Decontaminating the hose and canister may be time consuming and require additional decon wipes. Once the decon of the hose and canister is complete, have a third buddy hold it away from your contaminated overgarment to avoid recontamination. The third buddy who holds the cannister should decon his hands prior to touching it. When you have finished decontaminating your buddy's mask, decontaminate your gloves in preparation for rolling your buddy's hood. (NOTE: When decontaminating the mask, do not press so hard that you break your buddy's seal.) Roll your buddy's hood. Leave the zipper on the hood closed on M42/M43 only. Lift the hood straight up off your buddy's shoulders by grasping the straps where they connect to the back of the hood. Do not grasp under the hood. Pull the hood (by the straps) up and over the head until the bottom of the back of the hood is to the top of the eye lens outserts, but not over. Check for contamination on the underside of the hood edges and decon, if necessary.</p> <p>Step 3 procedures continue on facing page.</p>

**Table 3-6 continued. MOPP gear exchange (triple buddy method)
M24, M25A1, or M42/M43 (Aviation or Armor).**

Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood (continued).</p> <p>Risk. Radiological. If you do not do this step, excessive radiation exposure could occur from contaminants on the hood and mask. You also risk spreading contamination to your skin during the undressing.</p>	<p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3-gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One M258A1 skin decontaminating kit per person, if water is not available. 	<p>Put one tuck (about two inches) on the forehead, then begin rolling (tightly) at both temples simultaneously by tucking in with the thumbs as you roll toward the bottom of the zipper (D).</p> <p>M24/M25A1/M43: Make a continuous roll (like a horseshoe). Then roll up from the bottom of the zipper (tightly) for M42/M43 to the voicemitter (or hose of the M24/M25A1/M43).</p> <p>M42: Hold the mask firmly in place to avoid breaking the seal. Make the rolls from each side of the hood come to a point at the bottom of the zipper, forming a V. Put a half twist in the V, forming the two sides into a tail (see photo H, page 3-15). Then tuck the tail between the upper part of the canister and mask. Tie tail over and under the hose for the M42.</p> <p>Radiological: Wipe your buddy's mask and hood with sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. The buddy does his or her own gloves. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use M258A1 skin decon kit ONLY if no water is available. If water supply is limited, soldier may use some of his drinking water (from his canteen) with a wet sponge or cloth. Do not reverse roles. Only your buddy's hood will be decontaminated and rolled at this time.</p>
<p>Step 4. Remove overgarment/overshoes. Performing this step limits the spread of agents and helps prevent agents from penetrating through to skin or undergarments.</p> <p>Risks. If you do not do this step, the agent will penetrate your overgarment. The more agent on the overgarment, the quicker it will penetrate. If you do not do this step properly, you risk spreading the agent onto your undergarments or skin, causing casualties.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (recommend plastic bags). 	<p>Chemical/biological. Unfasten the three snaps on the back of the overgarment trousers. Do this by grasping the outside overgarment jacket and un-snapping the snaps individually (See photo I, page 3-16). Untie the drawcord at the bottom of the jacket, unfasten the Velcro® at the wrist, and then refasten (see photo J, page 3-16). Unfasten the Velcro® closures over the zippered front of the jacket and unzip the jacket. Grasp the jacket at the shoulders.</p> <p>Instruct the buddy to make a fist. Pull the jacket down and away from the soldier, ensuring that the black part of the jacket isn't touched (E). Lay the overgarment jacket on the ground, black side up. (It will be used for the buddy to stand on later.)</p> <p>Step 4 procedures continue on next page.</p>



D



E

Table 3-6 continued. MOPP gear exchange (triple buddy method) M24, M25A1, or M42/M43 (Aviation or Armor).		
Steps and Risks	Equipment	Procedures
<p>Step 4. Remove overgarment/over-shoes (continued).</p>		<p>Carefully unfasten and unzip the trousers. Do not loosen waist tabs. Instruct the soldier to break the seals on the over-shoes by alternately stepping on the heels and pulling up his foot (see photo M, page 3-16). Grasp trousers and pull them down to the knees. Instruct soldier to walk out of trousers/GVOs, taking care not to step on the contaminated side of the overgarment (F). If wearing overboots, remove trousers first, then step out of overboots (with buddy's help) onto the black side of the jacket. Soldier should step onto the jacket wearing his mask, BDUs, and gloves.</p>
<p>Step 5. Remove gloves. Performing this step removes contaminated gloves and limits the spread of contamination.</p> <p>Risks. If this step is not done, probably the agent will be transferred to clean overgarment (Step 6). Contamination may get on your skin because gloves rip, puncture, and wear out.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Discard container (from step 4). 	<p>Hold the finger tips of the glove and partially slide the hand out. When fingers of both hands are free, hold arms away from body and let gloves drop off. (See photos O and P, page 3-17).</p>
<p>Step 6. Put on overgarment. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step properly, you risk contaminating your new overgarment or your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set chemical protective overgarments per person (correct size). 	<p>Open package containing new overgarment, but do not touch the garment. Have your buddy reach into the package and pull out the overgarment without touching the outside of the package. Your buddy puts on the trousers and the jacket (G), fastens overgarment, and leaves trouser legs open. Do not reverse roles. Only your buddy will put on clean overgarment at this time. Table 3-6 continues on facing page.</p>



F



G

Table 3-6 continued. MOPP gear exchange (triple buddy method) M24, M25A1, or M42/M43 (Aviation or Armor).		
Steps and Risks	Equipment	Procedures
<p>Step 7. Put on overboots and gloves. Performing this step improves MOPP protection.</p> <p>Risks. If you do not do this step, you risk becoming a casualty by touching contamination remaining on unit equipment. If you do not do this step properly, you risk spreading contamination to your skin or undergarments.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overboots per person. ● One set of chemical protective gloves per person (correct size). ● M9 paper. 	<p>Pick up a package of clean overboots and open it without touching the overboots inside. Have your buddy reach into the package (without touching the outside of package). Remove the overboots and put them on and fasten trouser legs. Open a package of clean gloves without touching the gloves. Have your buddy remove them from the package (without touching the outside of package) and put them on. Put on M9 paper. Do not reverse roles. Only your buddy will put on clean overboots and gloves at this time. NOTE: Gloves and boots will have a light powdery coating. This is normal. It is not necessary to remove it. It will not affect the protective qualities.</p>
<p>Step 8. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step, you risk transferring contamination to the inside of the hood..</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One decon 1, one decon 2 wipe packet from M258A1 kit. ● One M295 skin decon kit. 	<p>Decontaminate your rubber gloves with an M258A1 or M295 skin decon kit. Once gloves are decontaminated, unroll your buddy's hood, attach the straps, and tighten the neck cord. Check all zippers and ties on the hood and zippers, snaps, Velcro®, and ties on overgarment to ensure they are closed.</p>

**Reverse roles. Repeat steps 2 through 8.
This time have your buddy help you through the steps.**

Table 3-6 continued. MOPP gear exchange (triple buddy method) M24, M25A1, or M42/M43 (Aviation or Armor).		
Steps and Risks	Equipment	Procedures
<p>Step 9. Secure gear. Performing this step prepares the soldier to return to battle.</p> <p>Risks: None.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One chemical protective helmet cover per person. 	<p>Secure individual gear. Put it back on and move to assembly area. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet. Use buddy system to check fit of all secured gear.</p>
<p>This is the last step of MOPP gear exchange (triple buddy method).</p>		

Individual (Emergency) Method

It may be necessary for a single soldier to exchange MOPP gear when no one can assist. The contaminated soldier may be alone or his buddy wounded or unable to

assist. This method is only used in extreme emergencies since there is a high risk of transferring contamination from the overgarment to skin or undergarments. See Table 3-7 for detailed instructions on this method.

Table 3-7. Individual MOPP gear exchange (emergency method).

Steps and Risks	Equipment	Procedures
<p>Step 1. Decon gear. Performing this step removes the gross contamination from individual gear, (weapon, helmet, load-bearing equipment, and mask carrier).</p> <p>Risks. If you do not do this step, you will transfer contamination from your individual gear to your new MOPP gear. You will have to change MOPP gear again within 6 hours for CPOs or 24 hours for BDOs, even if you do not receive any more contamination. If chemical/biological contamination is not removed from individual gear, the weathering process will be delayed. If radiological contamination is not removed, your radiation exposure will increase over time, prolonging the time you must remain in MOPP gear.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M256-series skin decon kit per person (or one M258A1 skin decon kit person when the M295 kit is not available). <p>Radiological:</p> <ul style="list-style-type: none"> ● Water and soap or use M258A1 when water is not available. 	<p>Chemical/biological: Use M8 detector paper to determine areas of gross contamination and use field expedient sorbants, such as sand, dirt, or rags to remove the gross liquid contamination. Take special care to avoid touching these areas during overgarment removal. Use your M295 or M258A1 decontaminating kit to decon your personnel gear (helmet, LCE, weapon and mask carrier).</p> <p>Radiological: Brush or wipe radiological contamination from your individual gear. Wash with warm, soapy water (if available). Set aside to dry on an uncontaminated surface (plastic, poncho, or similar material). Use M258A1 kit if soap and water are not available.</p>
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove his overgarment trousers and overboots later in the procedure. It also allows for the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting tool. 	<p>Unfasten shoulder straps on the hood and pull them over the shoulders and reattach them to the velcro® fastener (A). Loosen drawcord on hood of the protective mask (B). If wearing the M24, M25A1, M42, or M43 protective mask, tie off the microphone cord to the hose of the mask (see photo A, page 3-19). Remove M9 paper from overgarment. Untie/cut drawcords on trouser legs of the overgarment. Unzip the trouser legs (C). Roll a cuff in the trouser legs, ensuring that the cuff does not come above the top of the overboot (D). Unfasten or cut the fasteners on the GVO or untie the laces on the protective overboot.</p>
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood.</p> <p>Risks. Chemical/biological contamination. If this step is not done, small amounts of chemical/biological contamination may still be on the mask and hood. You will risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M295 or M258A1 skin decon kit per person. 	<p>Chemical/biological. Using the M295 or M258A1 kit, decontaminate the hood and exposed parts of your mask (including the canister and hose on M24/M25A1 masks). Start with the mask eye lens outserts, wiping from the top of the hood down (E). When you have finished wiping your mask, decontaminate gloves before rolling hood. Leave the hood zipper closed. Grasp the hood by the straps and lift the hood off the shoulders and partially over the head until most of the back of the head is exposed (F). Roll the hood, starting at the chin, and work around the entire mask until the rolled hood will stay up off the shoulders (G). Tuck zipper cord and neck cord into the roll. Roll the hood tightly against your mask without pulling hood off the back of the head. (H). Tuck the tail between the upper part of the canister and mask. Tie tail over and under hose for M42 mask (I).</p> <p>Step 3 continues.</p>



A



B



C



D



E



F



G



H



I

Table 3-7 continued. Individual MOPP gear exchange (emergency method).

Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood (continued).</p>	<p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3-gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One M258A1 skin decontaminating kit per person, if water is not available. 	<p>Radiological: Wipe your mask and hood with sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use M258A1 skin decon kit ONLY if no water is available. If water supply is limited, soldier may use some of his drinking water (from his canteen) with a wet sponge or cloth.</p>
<p>Step 4. Remove overgarment/over-shoes. Performing this step limits the spread of agents and helps prevent agents from penetrating through to skin or undergarments.</p> <p>Risks. If you do not do this step, the agent will penetrate your overgarment. The more agent on the overgarment, the quicker it will penetrate. If you do not do this step properly, you risk spreading the agent onto your undergarments or skin, causing casualties.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (recommend plastic bags). ● Chemical suit with protective gloves and overboots. 	<p>Chemical/biological. Unfasten the three snaps on the back of the overgarment trousers. Do this by grasping the outside overgarment jacket and unfastening the snaps individually (J). Untie the drawcord at the bottom of the jacket. Unfasten the velcro at the wrist and then refasten. Unfasten the velcro closures over the zippered front of the jacket and unzip the jacket (K). Grasp the front of the jacket and pull the jacket back until it is off the shoulders. Put your arms behind your back and work your arms out of the sleeves (L). Be careful not to let the outside of the jacket touch your body. When the jacket is off, lay it on the ground with the black side up. Carefully unfasten and unzip the trousers. Do not loosen the waist tabs. Break the seals on the overshoes by alternately stepping on the heels and pulling up the foot (M). Grasp the trousers and push them down to the knees (N). Walk out of the trousers/GVOs taking care not to step on the contaminated side of the overgarment (O). If wearing overboots, remove trousers first, then step out of overboots onto the black side of jacket. Step onto the jacket wearing the mask, BDUs, and gloves.</p> <p>Table 3-7 continues.</p>



J



K



L



N



M



O

Table 3-7 continued. Individual MOPP gear exchange (emergency method)		
Steps and Risks	Equipment	Procedures
<p>Step 5. Remove gloves. Performing this step removes contaminated gloves and limits the spread of contamination.</p> <p>Risks. If this step is not done, it is quite probable the agent will be transferred to clean overgarments (Step 6). It is probable that the agent will get on your skin because gloves tear, rip, puncture, and wear out.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (from Step 4). ● M295 skin decon kit ● M258A1 skin decon kit 	<p>Before removing your gloves, decontaminate your gloves and around the edge of the package (new gloves, overgarments, and overboots) with the M258A1 or M295 SDK. Once you have opened the new packages, remove your old gloves. Hold the finger tips of the glove and partially slide the hand out (P). When fingers of both hands are free, hold arms away from body and let the gloves drop off (Q).</p>
<p>Step 6. Put on overgarment. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step properly, you risk contaminating your new overgarments or your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overgarments per person (correct size). 	<p>Carefully reach into the package and remove the overgarment. Then begin redressing procedures. Put on trousers and jacket (R). Fasten the overgarment, but leave trouser legs open (until you put on new overboots).</p>



P



Q



R

Table 3-7 continued. Individual MOPP gear exchange (emergency method)		
Steps and Risks	Equipment	Procedures
<p>Step 7. Put on overboots and gloves. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step, you risk becoming a casualty by touching contamination remaining on unit equipment. If you do not do this step properly, you risk spreading contamination to your skin or undergarments.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set chemical protective overboots per person (correct size). ● One set chemical protective gloves per person (correct size). 	<p>Carefully reach into the package and remove the overboots one at a time. Put them on. Remove your gloves from their package without touching the outside. Put them on and fasten your trouser legs. (NOTE: Gloves and boots will have a light powdery coating. This is normal. Do not remove it. It will not affect the protective qualities.</p> <p>Table 3-7 continues on facing page.</p>

Table 3-7 continued. Individual MOPP gear exchange (emergency method)

Steps and Risks	Equipment	Procedures
<p>Step 8. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If you do not do this step, you risk transferring contamination to the inside of the hood.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● M258A1 or M295 skin decon kit 	Decontaminate your rubber gloves with an M258A1 or M295 skin decon kit. Unroll your hood, attach the straps, and tighten neck cord. Check all zippers and ties on the hood and overgarment to ensure they are closed.
<p>Step 9. Secure gear. Performing this step prepares the soldier to return to battle.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One chemical protective helmet cover per person. 	Secure individual gear. Put it back on and move to assembly area. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet.

MOPP Gear Exchange (Chemical Protective Undergarment)

This method of MOPP gear exchange is performed for units issued the chemical protective undergarment (CPU). The CPU is worn under the combat vehicle crewman uniform system (CVCS) or the battle dress uniform (BDU). There are three types of procedures for MOPP gear exchange when wearing the CPU during operational decon: buddy team, triple buddy team, and individual emergency MOPP gear exchange.

Buddy Team Method

MOPP gear exchange using the buddy team method is best managed with squad-size elements. Two soldiers can do this exchange, but squad leader supervision is recommended. A lead team composed of the squad leader and another soldier directs the exchange from center of the circle as they go through it themselves. (See Table 3-8).

Pair soldiers into buddy (two-man) teams. Space the teams around a circle, with 1 to 3 meters between teams.

Control contamination spread by putting contaminated undergarments and discarded towelettes in one pile.

If at any time during the technique you suspect you have spread contamination onto your skin or undergarments, stop. Decontaminate immediately with the skin decon kit, then proceed with the MOPP gear exchange.

MOPP gear exchange begins when a company supply vehicle unloads replacement undergarments and decontaminants. The squad decontaminates individual fighting equipment at this point and picks up new MOPP gear. The squad members pair up, forming a circle around a lead team. The soldiers in each buddy team alternate as they go through step 1. At step 2, the soldier and buddy no longer alternate between steps. The first soldier goes all the way through steps 2 through 9 before alternating. Now the soldier's reverse roles. This ensures no contamination is spread onto skin or undergarments.

Table 3-8. CVCUS/CPU Gear Exchange

Steps and Risks.	Equipment	Procedures
<p>Step 1. Decon gear. Performing this step removes gross contamination from individual gear (weapon, helmet, load-bearing equipment and mask carrier)</p> <p>Risks. If not done you will transfer contamination from individual gear to new MOPP gear. You will have to change CPU gear within 12 hours, even if you do not receive any more contamination. If chemical/biological contamination is not removed from individual gear, the weathering process will be delayed (see FM 3-4). If radiological contamination is not removed, your radiation exposure may increase over time, prolonging the time you must remain in MOPP gear.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Four long-handled brushes. ● Large piece of plastic (poncho or similar material). <p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One 5-gallon container STB dry mix. <p>Radiological: None.</p>	<p>Chemical/biological: If personnel armor system, ground troops (PASGT) helmet is worn, remove and discard the chemical protective helmet cover. Brush or rub STB into personal (LCE, kevlar helmet, weapon) equipment. Brush or rub STB dry mix onto the hose if wearing the M24, M25A1, or M42 mask. Gently shake off any excess. Set aside gear on an uncontaminated surface.</p> <p>Radiological: Shake or brush contamination off.</p>

Table 3-8 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove the combat vehicle crewman uniform system (CVCUS) and overboots later. It also allows the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting tool. 	<p>Unfasten the straps on the hood and pull them over the shoulder and reattach them to the Velcro® fastener (A). Loosen drawcord on hood of the protective mask (B). Remove M9 paper (C). Unzip the ankles on both legs of the CVCUS. Unfasten or cut the fasteners of the GVO or untie/cut the laces on the protective overboot (See photo D, page 3-31). NOTE: A soldier can do this step himself or with the help of his buddy.</p>
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood. The squad leader and companion or two personnel for the squad stand in the center of the circle. They supervise the other teams while they go through the technique themselves.</p> <p>Risks. Chemical/biological. If not done, small amounts of chemical contamination may still be on the mask and hood. You will risk spreading contamination to your skin during the exchange.</p> <p>Risks. Radiological contamination. If not done, excessive radiation exposure could occur from contaminants on the hood and mask. You may also risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 or M295 skin decon kit per person. <p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3 gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One M258A1 skin decon kit per soldier, if water is not available. 	<p>Chemical/biological: Using the M258A1 or M295 SDK, decontaminate the hood and exposed parts of buddy's mask. Start with the eyelens outserts, wiping from the top down. NOTE: When decontaminating the mask, do not press so hard that you break your buddy's face-to-mask seal. Then decon the rest of the hood, wiping from the top of the head to the bottom of the hood (E). When you have finished decontaminating your buddy's mask, decontaminate your gloves in preparation for rolling your buddy's hood. Leave the zipper on the hood closed. Starting from the rear, roll your buddy's hood, using two-inch tucks, until it reaches the center of the top of the head (F). Roll the front of the hood tightly under the outlet valve and filter. Ensure the hood is off the garment (G).</p> <p>M40 Mask. The contaminated soldier holds the mask firmly in place to avoid breaking the seal. Make the rolls from each side of the hood come to a point at the bottom of the zipper, forming a V. Put a half twist in the V, forming the two sides of the tail. Then tuck the tail between the upper part of the canister and the mask (see photo H, page 3-15). Tie the tail over and under the hose for the M42 mask.</p> <p>Radiological: Wipe your buddy's mask and hood with a sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. Your buddy then does his or her own gloves. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use M258A1 skin decon kit only if no water is available. If water is limited, soldier may use drinking water from canteen with a wet sponge or cloth. Only your buddy's hood will be decontaminated and rolled at this point.</p>



A



B



C

Table 3-8 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 4. Remove CVCUS/overshoes. Performing this step limits the spread of agents and helps prevent agents from penetrating the skin.</p> <p>Risks. If not done, the agent will penetrate your CVCUS and undergarment. The more agent on the CVCUS, the quicker it will penetrate. If not done properly, you risk spreading the agent onto your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (plastic bags). 	<p>Open all zippers on your buddy's CVCUS in this order: wrists and front (H). While standing behind your buddy and adjacent to the clean area, grasp the shoulders of the CVCUS and pull it down below the knees, turning it inside out (I). Your buddy should make a fist to ensure that his gloves do not come off. Your buddy should partially remove each foot from the overboot by stepping on the heel and pulling upward. While kneeling, grasp both the leg of your buddy's CVCUS and his GVO. Have him lift his leg to remove his foot from the GVO and CVCUS at the same time while you assist him (J). He will then place his foot directly onto the clean area. Do the same for the other foot. Decon your gloves again.</p> <p>BDU. If wearing BDUs, unfasten all buttons and the wrist straps on your buddy's BDU jacket. While standing behind your buddy and adjacent to a clean area, remove the BDU jacket turning it inside out (K). Your buddy should make a fist to ensure that the gloves do not come off. Discard the BDU jacket. Remove your buddy's BDU trouser cuffs from the combat boots and fold up the cuffs (inside out) to the top of the overboots (L). Instruct the soldier to break the seals on the overboots by stepping on the heels and pulling upward. Walk out of the overboots and step directly onto the clean area (M). Unfasten the belt and waist strap and unbutton the fly of your buddy's BDU trousers. Pull the trousers down far enough to clear the CPU jacket.</p>
<p>Step 5. Remove CPU jacket/gloves. Performing this step removes contaminated CPU jacket and gloves and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers. 	<p>Instruct soldier to hold the finger tips of the gloves and partially slide the hand out. When fingers of both hands are free, hold arms away from the body and let gloves drop off (See photos O and P, page 3-17). Unzip and remove the CPU jacket by grasping at the shoulders and pulling it down, turning it inside out (N). Place it on the clean area with the clean side up (O). Remove the protective glove inserts.</p>



D



E



F



G



H



I



J



K



L



M



N



O

Table 3-8 continued. CVCUS/CPU Gear Exchange		
Steps and Risks	Equipment	Procedures
<p>Step 6. Remove combat boots/CPU pants. Performing this step removes contaminated CPU pants and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers. 	<p>Unlace combat boots (P). Instruct soldier to partially remove each foot by stepping on the heels and pulling upward. Remove each foot from the combat boot, while stepping directly onto the CPU shirt. Remove CPU drawers by pulling on the sides and turning them inside out (Q). Your buddy is now stripped to underwear and mask and is ready to don new clothing.</p> <p>BDU. If wearing the BDU, instruct soldier to stand on the clean area (but not on the CPU jacket). Unlace buddy's combat boots. Taking one trouser leg at a time, remove the trouser leg and combat boot simultaneously (R). As each foot is removed from the boot, instruct buddy to step directly onto the clean side of the CPU jacket.</p>
<p>Step 7. Put on CPU. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk contaminating your new undergarments</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective undergarments per soldier. 	<p>Open packages containing new undergarments, but do not touch the garments inside. Instruct soldier to reach into the package and pull out the undergarment without touching the outside of the package. Soldier dons new clothing in the following order: CPU drawers, CPU jacket, combat boots, and CVCUS (over the CPU drawer legs) (S).</p>



P



Q



R



S

Table 3-8 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 8. Put on overboots and gloves. Performing this step restores NBC protection.</p> <p>Risks. If not done, you risk becoming a casualty by touching contamination remaining on your unit equipment. You risk spreading contamination to your skin or undergarments. You risk contaminating your combat boots.</p>	<p>All Contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overboots per soldier. ● One set of chemical protective gloves per soldier. ● M9 paper. 	<p>Pick up a package of clean overboots and open it without touching the overboots inside. Instruct soldier to reach into the package (without touching the outside of the package) and put them on (T). Open a package of clean gloves without touching the gloves inside. Instruct soldier to reach inside the package (without touching the outside of the package) and put them on (U). Put on M9 paper (V).</p>
<p>Step 9. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk transferring contamination to the inside of the hood.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One decon 1 and one decon 2 wipe packet from M258A1 kit. ● One M295 decon packet. 	<p>Decontaminate your rubber gloves with an M258A1 or M295 skin decon kit. Once gloves are decontaminated, unroll your buddy's hood and attach the straps and tighten the neck cord (W). Check all zippers, Velcro and ties on the hood and undergarment to ensure they are closed.</p>

REVERSE ROLES: Repeat steps 2 through 9.



T



U



V



W

Table 3-8 continued. CVCUS/CPU Gear Exchange		
Steps and Risks	Equipment	Procedures
<p>Step 10. Secure gear. Performing this step prepares the soldier to return to battle.</p> <p>Risks. None.</p>	<ul style="list-style-type: none"> ● One chemical protective helmet per person. 	<p>Secure individual equipment and put it back on. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet. Check fit of all secured equipment. Move to assembly area.</p>

Triple Buddy Method

This method is used by soldiers equipped with the tankers or aviators mask (see Table 3-9). The triple buddy method uses a third soldier for MOPP gear exchange. This soldier holds the canister and hose, keeping it from transferring liquid contamination to the undergarments. The risk of transfer of contamination is increased because of the contaminated protective mask, hose, and filter. This MOPP gear exchange technique reduces the risk of contamination transfer. Teams consist

of three persons. Space the team around a circle, with 2 to 4 meters between teams. The squad members pair up in triple buddy teams, forming a circle around a lead team. The soldiers in each triple buddy team alternate as they go through step 1. At step 2, the soldier and buddies no longer alternate between steps. The first soldier goes all the way through steps 2 through 9 before alternating. Now the three soldiers alternate roles. This ensures no contamination is spread onto skin or undergarments.

Table 3-9 CVCUS/CPU Gear Exchange (Triple Buddy Method) M24, M25A1, or M42/M43 (Aviation or Armor)		
Steps and Risks	Equipment	Procedures
<p>Step 1. Decon Gear. Performing this step removes gross contamination from individual gear (weapon, helmet, load-bearing equipment and mask carrier)</p> <p>Risks. If not done you will transfer contamination from individual gear to new MOPP gear. You will have to change CPU gear within 12 hours, even if you do not receive any more contamination.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Four long-handled brushes. ● Large piece of plastic (poncho or similar material). <p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One 5-gallon container STB dry mix. <p>Radiological: Hot, soapy water.</p>	<p>Chemical/biological: If personnel armor system, ground troops (PASGT) helmet is worn, remove and discard the chemical protective helmet cover. Brush or rub STB into personal (LCE, kevlar helmet, weapon) equipment. Brush or rub STB dry mix onto the hose if wearing the M24, M25A1, or M42 mask. Gently shake off any excess. Set aside gear on an uncontaminated surface.</p> <p>Radiological: Brush or wipe radiological contamination from your individual gear. Wash with warm, soapy water (if available). Set aside to dry on an uncontaminated surface (plastic or poncho).</p>
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove the CVCUS and overboots later. It also allows the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting Tool 	<p>Unfasten the straps on the hood and pull them over the shoulder and reattach them to the Velcro® fastener (see photo A, page 3-13). Loosen drawcord on hood of the protective mask (see photo B, page 3-13). Tie off the microphone cord to the hoses of the mask (A). Remove M9 paper (see photo C, page 3-14). Unzip the ankles on both legs of the CVCUS. Unfasten or cut the fasteners of the GVO or untie/cut the laces on the protective overboot (see photo D, page 3-14). NOTE: A soldier can do this step himself or with the help of his buddy.</p>



A



B

Table 3-9 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood. The squad leader and companion or two personnel from the squad stand in the center of the circle. They supervise the other teams while they go through the technique themselves.</p> <p>Risks. Chemical/biological. If not done, small amounts of chemical contamination may still be on the mask and hood. You will risk spreading contamination to your skin during the exchange.</p> <p>Risks: Radiological contamination. If not done, excessive radiation exposure could occur from contaminants on the hood and mask. You may also risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 or M295 skin decon kit per person. <p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3 gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One M258A1 skin decon kit per soldier, if water is not available. 	<p>Chemical/biological: If wearing the M24, M25A1, or M42/M43 mask, use a triple buddy team (three buddies). Using the M258A1 or M295, decontaminate the hood and exposed parts of your buddy's mask (including the cannister and hose of the M24, M25A1, or M24/M25 mask). Start with the eyelens outserts, wiping from the top down. Decontaminating the hose and cannister may be time consuming and require additional wipes. Once the decon of the hose and cannister is complete, have a third buddy hold it away from your contaminated overgarment to avoid recontamination. Then decon the rest of the hood, wiping from the top of the head to the bottom of the hood (see photo E, page 3-15). When you have finished decontaminating your buddy's mask, decontaminate your gloves in preparation for rolling your buddy's hood. NOTE: When decontaminating the mask, do not press so hard that you break your buddy's face-to-mask seal. Leave the zipper on the hood closed on the M42/M43 only. Starting from the rear, roll your buddy's hood, using two-inch tucks, until it reaches the center of the top of the head (see photo F, page 3-15).</p> <p>M24/M25A1/M42/M43: Unzip the hood. The contaminated soldier holds the mask firmly in place to avoid breaking the seal. Starting from the rear, roll your buddy's hood, using two-inch tucks, until it reaches the top of the head. Tie the ends of the hood over and under the filter hose.</p> <p>Radiological: Wipe your buddy's mask and hood with a sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. Your buddy then does own gloves. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use M258A1 skin decon kit only if no water is available. If water is limited, soldier may use drinking water from canteen with a wet sponge or cloth. Only buddy's hood will be decontaminated and rolled at this point.</p>

Table 3-9 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 4. Remove CVCUS/overshoes. Performing this step limits the spread of agents and helps prevent agents from penetrating the skin.</p> <p>Risks. If not done, the agent will penetrate your CVCUS and undergarment. The more agent on the CVCUS, the quicker it will penetrate. If not done properly, you risk spreading the agent onto your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> Two discard containers (plastic bags). 	<p>Chemical/biological: Open all zippers on your buddy's CVCUS in this order: wrists and front (B). While standing behind your buddy and adjacent to the clean area, grasp the shoulders of the CVCUS and pull it down below the knees, turning it inside out (C). Your buddy should make a fist to ensure that his gloves do not come off. While kneeling, grasp both the leg of your buddy's CVCUS and his GVO. Instruct buddy to lift leg to remove his foot from the GVO and CVCUS at the same time while you assist him (D). He will then place his foot directly onto the clean area. Do the same for the other foot. Decon your gloves again.</p> <p>BDU. If wearing BDUs, unfasten all buttons and the wrist straps on your buddy's BDU jacket. While standing behind your buddy and adjacent to a clean area, remove the BDU jacket turning it inside out (see photo K, page 3-32). Buddy makes a fist to ensure that the gloves do not come off. Discard the BDU jacket. Remove your buddy's BDU trousers from the combat boots and fold up the cuffs (inside out) so that they are above the top of the overboots (See photo L, page 3-32). Instruct buddy to break the seals on the overboots by stepping on the heels and pulling upward. Instruct buddy to walk out of the overboots and step directly onto the clean area (See photo M, page 3-32). Unfasten the belt and waist strap and unbutton the fly of your buddy's BDU trousers. Pull the trousers down far enough to clear the CPU jacket.</p>
<p>Step 5. Remove CPU jacket/gloves. Performing this step removes contaminated CPU jacket and gloves and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> Two discard containers. 	<p>Instruct soldier to hold the fingertips of the gloves and partially slide hands out (See photo O, page 3-17). Open all Velcro® wrist fasteners and unzip your buddy's CPU jacket (E). Remove the CPU jacket by grasping at the shoulders and pulling it down, turning it inside out (F). Place it on the clean area with the clean side up. Remove protective glove inserts.</p>



C



D



E



F

Table 3-9 continued. CVCUS/CPU Gear Exchange

Steps and Risks	Equipment	Procedures
<p>Step 6. Remove combat boots/CPU pants. Performing this step removes contaminated CPU pants and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers. 	<p>Unlace combat boots. Instruct soldier to partially remove combat boots by stepping on the heels and pulling upward with each foot. Remove each foot and step directly on the CPU shirt. Remove CPU drawers by pulling on the sides and turning them inside out (see photo Q, page 3-33). Soldier is now stripped to underwear and mask and is ready to don new clothing.</p> <p>BDU. If wearing the BDU, instruct soldier to stand on the clean area (but not on the CPU jacket) and unlace combat boots. Partially remove each foot from combat boot by stepping on the heel and pulling upward. Taking one trouser leg at a time, remove the trouser leg and combat boot simultaneously (See photo R, page 3-33). As each foot is removed from the boot, your buddy will step directly onto the clean side of the CPU jacket.</p>
<p>Step 7. Put on CPU. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk contaminating your new undergarments</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective undergarments per soldier. 	<p>Open packages containing new undergarments, but do not touch the garments inside. Instruct soldier to reach into the package and pull out the undergarment without touching the outside of the package. Soldier dons new clothing in the following order: CPU drawers, CPU jacket, combat boots and CVCUS (over the CPU drawer legs) (G).</p>

Table 3-9 continued. CVCUS/CPU Gear Exchange		
Steps and Risks	Equipment	Procedures
<p>Step 8. Put on overboots and gloves. Performing this step restores NBC protection.</p> <p>Risks. If not done, you risk becoming a casualty by touching contamination remaining on your unit equipment. You risk spreading contamination to your skin or undergarments. You risk contaminating your combat boots.</p>	<p>All Contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overboots per soldier. ● One set of chemical protective gloves per soldier. ● M9 paper. 	<p>Pick up a package of clean overboots and open it without touching the overboots inside. Instruct soldier to reach into the package (without touching the outside of the package) and put them on (see photo T, page 3-34). Open a package of clean gloves without touching the gloves inside. Instruct soldier to reach inside the package without touching the outside of the package) and put them on (see photo U, page 3-34). Put on M9 paper (see photo V page 3-34).</p>
<p>Step 9. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk transferring contamination to the inside of the hood.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One decon 1 and one decon 2 wipe packet from M258A1 kit. 	<p>Decontaminate your rubber gloves with an M258A1 or M291 skin decon kit. Once gloves are decontaminated, unroll your buddy's hood and attach the straps and tighten the neck cord (H). Check all zippers, Velcro® and ties on the hood and undergarment to ensure they are closed.</p>

REVERSE ROLES: Repeat steps 2 through 9.
This time, have one of your buddies help you through the steps.

<p>Step 10. Secure gear. Performing this step prepares the soldier to return to battle.</p> <p>Risks none.</p>	<ul style="list-style-type: none"> ● One chemical Protective helmet per person. 	<p>Secure individual equipment and put it back on. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet. Check fit of all secured equipment. Move to assembly area.</p>
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G



H

Individual (Emergency) Method

This method of MOPP gear exchange is performed by units issued the chemical protective undergarment. MOPP exchange using the individual (emergency) method is performed only in extreme emergencies and/or life-threatening situations. Using this method increases the risk of transferring contamination to your battledress uniform or your skin. It increases the possibility of casualties. See Table 3-10 for a description of the procedure for individual (emergency) MOPP gear exchange. Do this method only when:

- You are in a chemical contaminated environment by yourself and MOPP gear exchange is required.
- Your buddy is wounded or unable to assist in the MOPP gear exchange.
- The commander authorizes MOPP gear exchange because of the tactical situation. (If the subordinate is cut off from the commander or meets any other conditions that warrant risking this, authorization can be given by the OIC or NCOIC.)

If at any time during the technique you suspect you have spread contamination onto your skin or undergarments, stop. Decontaminate immediately with the skin decon kit, then proceed with the MOPP gear exchange.

Table 3-10 CVCUS/CPU Gear Exchange (Emergency Method)

Steps and Risks	Equipment	Procedures
<p>Step 1. Decon gear. Performing this step removes gross contamination from individual gear (weapon, helmet, load-bearing equipment and mask carrier).</p> <p>Risks. If not done you will transfer contamination from individual gear to new MOPP gear. You will have to change CPU gear within 12 hours, even if you do not receive any more contamination. If chemical/biological contamination is not removed from individual gear, the weathering process will be delayed (see FM 3-4). If radiological contamination is not removed, your radiation exposure may increase over time, prolonging the time you must remain in MOPP gear.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 skin decon kit per person or one M291 skin decon kit per soldier. ● One set CPU, GVOs, and chemical protective gloves per soldier. ● One M258A1 or M295 skin decon kit per person. <p>Radiological: Water and soap or use M258A1 skin decon kit if water is not available.</p>	<p>Chemical/biological: Use M8 detector paper to determine areas of gross contamination and use field expedient absorbant, such as sand, dirt, or rags to remove the gross liquid contamination. Take special care to avoid touching these areas during CPU removal. Use M295 or M258A1 skin decon kit to decon your personal gear (helmet, LCE, weapon). Decontaminate your gloves and then decontaminate around the edges of the new CPU, GVOs, and gloves with an M258A1 or M291 skin decon kit. Open the new packages containing the CPU, GVOs, and gloves, but do not touch the contents inside the packages.</p> <p>Radiological: Shake or brush contamination off your individual gear. Wash with warm soapy water (if available). Set aside to dry on an uncontaminated surface (plastic or poncho). Use M258A1 kit if soap and water are not available.</p>
<p>Step 2. Prepare for decon. Performing this step allows the soldier to remove the CVCUS and overboots later. It also allows the hood to be rolled easier.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Cutting tool. 	<p>Unfasten the straps on the hood and pull them over the shoulder and reattach them to the Velcro fastener (A). Loosen drawcord on hood of the protective mask (B). If wearing the M24, M25A1, M42, or M43 protective mask, tie off the microphone cord to the hose of the mask (see photo A, page 3-19). Remove M9 paper from the overgarment (C). Unzip the ankles on both legs of the CVCUS. Unfasten or cut the fasteners of the GVO or untie/cut the laces on the protective overboot (D).</p>



A



B



C



D

Table 3-10 CVCUS/CPU Gear Exchange (Emergency Method)

Steps and Risks	Equipment	Procedures
<p>Step 3. Decon hood. Performing this step removes the gross contamination from the mask and hood.</p> <p>Risks. Chemical/biological. If not done, small amounts of chemical contamination may still be on the mask and hood. You will risk spreading contamination to your skin during the exchange.</p> <p>Risks: Radiological contamination. If not done, excessive radiation exposure could occur from contaminants on the hood and mask. You may also risk spreading contamination to your skin during the undressing.</p>	<p>Chemical/biological:</p> <ul style="list-style-type: none"> ● One M258A1 or M295 skin decon kit per person. <p>Radiological:</p> <ul style="list-style-type: none"> ● Three containers (about 3-gallon capacity). ● Two sponges. ● Soapy water. ● Rinse water. ● Paper towels or similar drying material. ● One M258A1 skin decon kit per soldier, if water is not available. 	<p>Chemical/biological: Using the M258A1 or M295, decontaminate the hood and exposed parts of your mask (including the cannister and hose on the M24/M25A1 masks). Start with the eyelens outserts, wiping from the top down. Then decon the rest of the hood, wiping from the top of the head to the bottom of the hood (E). When you have finished decontaminating your mask, decontaminate your gloves before rolling your hood. Leave the zipper on the hood closed. Starting from the rear, roll your hood, using two-inch tucks, until it reaches the center of the top of the head (F). Roll the hood tightly under the outlet valve and filter (G). Make sure the hood is off the garment.</p> <p>M24/M25/M42/M43 Mask. Avoid breaking the mask-to-face seal. Unzip the hood. Starting from the rear, roll the hood, using two-inch tucks, until it reaches the center of the top of the head. Make the rolls from each side of the hood come to a point at the bottom of the zipper, forming a V. Put a half twist in the V, forming the two sides of the tail. Tie the ends of the tail over and under the filter hose.</p> <p>Radiological: Wipe your mask and hood with a sponge dipped in hot, soapy water. Rinse with sponge dipped in clean water. Dry with paper towels or rags. Cool, soapy water is not as effective for removing contamination, but can be used if you scrub longer. Use M258A1 skin decon kit only if no water is available. If water is limited, soldier may use drinking water from canteen with a wet sponge or cloth.</p>



E



F



G



H



I



J



K



L



M

Table 3-10 CVCUS/CPU Gear Exchange (Emergency Method)

Steps and Risks	Equipment	Procedures
<p>Step 4. Remove CVCUS/overshoes. Performing this step limits the spread of agents and helps prevent agents from penetrating the skin.</p> <p>Risks. If not done, the agent will penetrate your CVCUS and undergarment. The more agent on the CVCUS, the quicker it will penetrate. If not done properly, you risk spreading the agent onto your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers (plastic bags). 	<p>Chemical/biological: Open all zippers on your CVCUS in this order: wrists and front (H). While standing adjacent to the clean area, grasp the front of the CVCUS and pull it off your shoulders. Put your arms behind your back and work your arms out of the sleeves. Make a fist to ensure that your gloves do not come off (I). Break the seals on the overshoes by alternately stepping on the heels and pulling up on your foot. Pull the CVCUS down below the knees, turning it inside out, being careful not to let the outside of the CVCUS touch your body. Walk out of the CVCUS and overshoes, taking care to step on the clean area (J).</p> <p>BDU. If wearing BDUs, unfasten all buttons and the wrist straps on your BDU jacket. While standing adjacent to a clean area, remove the BDU jacket, turning it inside out (K). Make a fist to ensure that the gloves do not come off. Discard the BDU jacket. Remove your BDU trouser cuffs from the combat boots and fold up the cuffs (inside out) to the top of the overboots (L). Break the seals on the overboots by stepping on the heel and pulling upward. Walk out of the overboots and place that foot directly onto the clean area (M). Unfasten the belt and waist strap and unbutton the fly of your BDU trousers. Pull the trousers down far enough to clear the CPU jacket.</p>
<p>Step 5. Remove CPU jacket/gloves. Performing this step removes contaminated CPU jacket and gloves and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers. 	<p>Before removing your gloves, decontaminate your gloves and around the edge of each package (new gloves, undergarment, and overboots) with the M258A1 or M295 decon kit. Once you have opened the new package, hold the finger tips of the gloves and partially slide the hands out (See photo P, page 3-28). Let the gloves fall to the ground. Open all Velcro® wrist fasteners and unzip your CPU shirt (N). Remove the CPU jacket by grasping at the shoulders and pulling it down, turning it inside out (O). Place it on the clean area with the clean side up. Remove protective glove inserts.</p>
<p>Step 6. Remove combat boots/CPU pants. Performing this step removes contaminated CPU pants and limits the spread of contamination.</p> <p>Risks. If not done, it is quite probable the agent will be transferred to your skin.</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● Two discard containers. 	<p>Unlace combat boots and remove them one at a time, while stepping directly onto the CPU jacket. Take off CPU drawers by placing hands beneath the waistband and removing them by turning CPU drawers inside out. You are now stripped to underwear and mask and are ready to don new clothing.</p> <p>BDU. If wearing the BDU, stand on the clean area (but not on the CPU jacket) and unlace combat boots. Partially remove each foot from combat boot by stepping on the heel and pulling upward. Taking one trouser leg at a time, remove the trouser leg and combat boot simultaneously. As each foot is removed from the boot, step directly onto the clean side of the CPU jacket (P).</p>
<p>Step 7. Put on CPU. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk contaminating your new undergarments</p>	<p>All contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective undergarments per soldier. 	<p>Reach into the package and pull out the undergarment without touching the outside of the package. Don new clothing in the following order: CPU drawers, CPU jacket, combat boots, and CVCUS (over the CPU drawer legs) (Q).</p>



N



O



P



Q

Table 3-10 CVCUS/CPU Gear Exchange (Emergency Method)		
Steps and Risks	Equipment	Procedures
<p>Step 8. Put on overboots and gloves. Performing this step restores NBC protection.</p> <p>Risks. If not done, you risk becoming a casualty by touching contamination remaining on your unit equipment. You risk spreading contamination to your skin or undergarments. You risk contaminating your combat boots.</p>	<p>All Contamination:</p> <ul style="list-style-type: none"> ● One set of chemical protective overboots per soldier. ● One set of chemical protective gloves per soldier. ● M9 paper. 	<p>Reach into the package of new overboots (without touching the outside of the package) and put them on (R). Reach into the package of clean gloves (without touching the outside of the package) and put them on (S). Put on M9 paper (T).</p>
<p>Step 9. Secure hood. Performing this step restores MOPP protection.</p> <p>Risks. If not done, you risk transferring contamination to the inside of the hood.</p>	<p>All Contamination:</p> <ul style="list-style-type: none"> ● One decon 1 and one decon 2 wipe packet from M258A1 kit. ● One M295 decon packet. 	<p>Decontaminate your rubber gloves with an M258A1 or M295 skin decon kit. Once gloves are decontaminated, unroll your hood, attach the straps, and tighten the neck cord. Check all zippers, Velcro, and ties on the hood and undergarment to ensure they are closed.</p>
<p>Step 10. Secure gear. Performing this step prepares the soldier to return to battle.</p> <p>Risks. None</p>	<ul style="list-style-type: none"> ● One chemical protective helmet per person. 	<p>Secure individual equipment and put it on. If PASGT helmet is worn, then place the new chemical protective helmet cover on helmet. Check fit of all secured equipment. Move to assembly area.</p>



R



S



T