

Appendix J

Nuclear, Biological, Chemical Defense

The technology to produce and deliver chemical and biological agents and weapons of mass destruction is widely available. This technology provides military and nonmilitary leaders in unstable regions with a means to deter more technically advanced nations. Weapons of mass destruction can radically change the flow of battle, shift the balance of combat power, and place a superior force at risk. Areas targeted with these weapons may remain hazardous for days, even weeks after an attack. Additionally, nuclear reactor and chemical production facility accidents or sabotage can release radiological or chemical contaminants that can threaten friendly forces and military operations.

OVERVIEW

J-1. Enemy forces may threaten sustainment areas to seize and maintain the initiative, while degrading or eliminating a unit's flexibility and capability to support operations. Sustainment area activities are lucrative targets for enemy NBC attacks. Attacking sustainment nodes weakens the main battle area's force effectiveness without adversely affecting an enemy's immediate maneuver. To achieve these aims, threat activities in sustainment areas target key critical support and logistic facilities. These facilities include—

- Special-weapons storage sites and delivery systems.

- C² facilities.
- Air defense artillery sites.
- Air bases.
- Seaports.
- MSRs.

HAZARD DETECTION AND REPORTING

J-2. The best units to perform NBC reconnaissance are those units with the M93 NBC Reconnaissance System (FOX). Planners consider the disadvantages of conducting NBC reconnaissance with HMMWV-equipped units. The disadvantages of using a HMMWV include the following:

- The crew conducts operations in MOPP 4 while in contamination.
- The vehicle stops to conduct survey and detection.
- The vehicle has difficulty keeping up with the maneuver force over rugged terrain.
- The readings obtained using an M256A1 kit, detector paper, and a chemical agent monitor (CAM) are not as reliable as readings from the M93 (FOX).

J-3. Planners use the IPB and the METT-TC to determine the type of NBC reconnaissance technique and the type of equipment to be used for the NBC reconnaissance.

J-4. Early detection of NBC hazards is required for timely warning of units and personnel in the affected areas. NBC reconnaissance is an active contamination avoidance measure that provides commanders with information on NBC hazards in an AO.

J-5. NBC reconnaissance contributes to the overall intelligence collection effort and consists of the following

five critical tasks: detecting, identifying, marking, reporting, and sampling. The four types of NBC reconnaissance include search, survey, sample, and surveillance.

J-6. MP may be tasked to conduct NBC reconnaissance while conducting other reconnaissance operations. They are equipped to detect and identify radiological and chemical hazards, mark the contaminated area, and report the hazard. They are not equipped to collect or handle samples.

J-7. NBC surveillance activities are planned to support the intelligence collection effort. MP conduct NBC surveillance by monitoring MSRs, critical facilities, and key terrain. They employ NBC detector equipment and measures that include the following:

- M8A1 automatic chemical agent alarm system.
- AN/VDR-2 RADIAC set.
- CAM.
- Visual observation for unexplained artillery or spray.
- M256A1, M8, and M9 paper.

J-8. If MP observe the indications of an NBC attack, they may be ordered to conduct an NBC survey to define the boundaries of the contamination, locate and mark clean bypass routes, and occupy OPs to observe the designated area. MP conduct an NBC survey, on order, to obtain detailed information concerning a contaminated area, including the location of the general boundaries of the contaminated area and the intensity of the contamination (nuclear) or the type of agent (chemical).

J-9. MP locate the boundaries and place warning markers around the contaminated area at all the entry points. They report information using an NBC 4 report and inform the road users of the contaminated area, and

direct the traffic to alternate routes to avoid the contaminated area.

J-10. At all echelons, MP provide continuous information to higher HQ using NBC 1 and NBC 4 reports (*Figure J-1*). These report formats provide a rapid means of disseminating information. Use the NBC 1 report to record the initial use and subsequent data concerning enemy NBC attacks. The initial NBC 1 report precedence is flash and all others are immediate. *Table J-1, pages J-6 through J-10*, gives an explanation of the various lines in an NBC report.

J-11. Use the NBC 4 report for radiation dose rate measurements. Usually, the unit submits two reports—one on initial contact and another for peak dose rate. Measure radiation dose rates in the open, 1 meter above the ground. If radiation dose rates are taken inside a vehicle or a shelter, at least one outside reading is necessary to determine the correlation factor. Other items of the report are optional. Refer to *FM 3-3* for more information about NBC reports.

J-12. As MP move throughout an AO, they monitor for the presence of an NBC hazard, mark contaminated areas, send NBC reports through operational channels, and direct traffic around or through hazards to ensure that the troops and the supplies get where they are needed on the battlefield.

CONTAMINATION MARKING

J-13. Mark contamination so that unsuspecting personnel will not be exposed to it. When detecting or suspecting NBC hazards, mark all likely entry points into the area and report the contamination to higher HQ. The only exception to this policy occurs when marking the area would help the enemy. If the commander makes this exception, report the hazard to protect friendly units.

NBC 1 Report (Observer's Report)		
NBC 1 (Nuclear) Report	NBC 1 (Biological) Report	NBC 1 (Chemical) Report
B. NB062634	B. LB206300	B. LB200300
C. 90-degree grid	D. 200410Z	D. 201405Z
D. 201405Z	E. 200414Z	E. 201412Z
G. Aircraft	F. LB206300, actual	F. LB206300, estimated
H. Surface	G. Aerial spray	G. Bomblets
J. 60	H. Unknown	H. Nerve
L. 15 degrees		V. Airburst
NOTE: Line items B, D, H, and either C or F should always be reported. Use other line items if the information is known.		

NBC 4 Report (Reconnaissance, Monitoring, and Survey Results)	
NBC 4 (Nuclear) Report	NBC 4 (Chemical) Report
Q. LB123987	H. Nerve V
R. 35	Q. LP200300, liquid
S. 201535Z	S. 170610Z
NOTES:	
1. Line items H, Q, R, and S may be repeated as often as necessary.	
2. In line R, descriptive words, such as initial, peak, increasing, decreasing, special, series, verification, or summary may be added.	

Figure J-1. Example of NBC 1 and NBC 4 Reports

Table J-1. Explanation of Line Items in NBC Report

Line	Nuclear	Chemical and Biological	Remarks
A	Strike serial number	Strike serial number	Assigned by the NBC center
B	Position of the observer	Position of the observer	Grid coordinates (universal transverse mercator [UTM] or place).
C	Direction of the attack from the observer, to include the unit of measure	Direction of the attack from the observer	Nuclear: Use degrees magnetic north (DGM), degrees true north (DGT), degrees grid north (DGG), mils magnetic north (MLM), mils true north (MLT), or mils grid north (MLG) Chemical: Measure clockwise from the grid or magnetic north (in degrees or mils)
D	DTG of detonation	DTG for the start of the attack	Nuclear: Use Zulu time. Chemical: Designate time zone used.
E	NA	DTG of the end of the attack	Designate time zone used.
F	Location of the area attacked	Location of the area attacked	Use grid coordinates (or place). State whether the location is actual or estimated.
G	Suspected or observed event and the means of delivery or kind of attack	Kind of attack	State whether the attack was by artillery, mortars, rockets, missiles, bombs, or spray.

Table J-1. Explanation of Line Items in NBC Report (Continued)

Line	Nuclear	Chemical and Biological	Remarks
H	Type of burst	Type of agent and type of burst P = persistent NP = nonpersistent	Nuclear: Specify air, surface, or subsurface. Chemical: State whether by air, ground, or spray attack.
I	NA	Number of munitions or aircraft	If known.
J	Flash-to-bang time	NA	Use seconds.
K	Crater present or absent and the diameter	Description of terrain and vegetation	Nuclear: Sent in meters. Chemical: Sent in NBC 6.
L	Cloud width at H+5 minutes	NA	State whether measured in degrees or mils.
M	Stabilized cloud top or cloud bottom angle or cloud top or bottom height at H+10 minutes	NA	Nuclear: State whether the angle is cloud top or cloud bottom and whether it is measured in degrees or mils. Chemical: State whether the height is cloud top or cloud bottom and whether it is measured in meters or feet.
N	Estimated yield	NA	Sent as kilotons.
O	Reference DTG for estimated contour line not H+1	NA	Use when the contours are not plotted at H+1.
P	For radar purposes only	NA	None

Table J-1. Explanation of Line Items in NBC Report (Continued)

Line	Nuclear	Chemical and Biological	Remarks
PA	NA	Predicted hazard area (coordinates)	If the wind speed is 10 kilometers per hour or less, this item is 010 (the radius of the hazard area in kilometers).
PAR	Coordinates of external contours of the radioactive cloud	NA	Six-digit coordinates. Letter R identifies RADAR set.
PB	NA	Duration of the hazard in the attack and hazard area	State in days, hours, minutes, and so forth
PBR	Downwind direction of the radioactive cloud and the unit of measure	NA	DGM, MLM, DGT, MLT, DGG, or MLG. The letter R identifies a RADAR set.
Q	Location of the reading	Location of the sampling and the type of sample	Nuclear: UTM or the place. Chemical: UTM or the place. State whether the test was air or liquid.
R	Dose rate or actual value of decay exponent	NA	State the dose rate in centigray per hour (cGyph).
S	DTG of the reading	DTG contamination detected	State the time of the initial identification test sample or when the reading was taken.

Table J-1. Explanation of Line Items in NBC Report (Continued)

Line	Nuclear	Chemical and Biological	Remarks
T	H+1 DTG	DTG of the latest contamination survey of the area	NBC 5 and NBC 6 reports only.
U	1,000-cGyph contour line	NA	Plot in red.
V	300-cGyph contour line	NA	Plot in green.
W	100-cGyph contour line	NA	Plot in blue.
X	20-cGyph contour line (30 cGyph contour line is used by other NATO forces)	Area of actual contamination	Nuclear: Plot in black. Chemical: Plot in yellow.
Y	Direction of the left and right radical lines	Downwind direction of the hazard and the wind speed	Nuclear: Direction measured clockwise from grid north (GN) to the left and then right radial lines (degrees or mils, state which), four digits each. Chemical: Direction is four digits (degrees or mils) and the wind speed is three digits (kilometers per hour).

Table J-1. Explanation of Line Items in NBC Report (Continued)

Line	Nuclear	Chemical and Biological	Remarks
Z	Effective wind speed Downwind distance of Zone 1 Cloud radius Unit of measure for each category	NA	Three digits—effective wind speed (kilometers per hour) Three digits—downwind distance of Zone 1 (kilometers or nautical miles) Two digits—cloud radius (kilometers or nautical miles) (the wind speed is less than 8 kilometers per hour, this line contains only a three-digit radius of Zone 1 [kilometers])
ZA	NA	Significant weather phenomena	Air stability: Two digits Temperature in centigrade: Two digits Humidity: One digit Significant weather phenomena: One digit Cloud cover: One digit
ZB	Used to transmit correlation factors or transmission factors	Remarks for additional chemical and biological attacks only.	Include any additional information.

PROCEDURES FOR MARKING

J-14. Face markers away from the contamination. For example, if markers are placed 50 meters from the

outside edge of a contaminated area to mark a radiological hot spot, they face away from the point of the highest contamination reading. Place markers at roads, trails, and other likely points of entry. When time and mission permit, use additional markers. The distance between the signs varies. In open terrain, place them farther apart than in hilly or wooded areas. Soldiers should be able to stand in front of a marker and see the markers to the left and right of it.

J-15. Units discovering a marked, contaminated area do not have to conduct elaborate, time-consuming surveys. The new unit checks the extent of the contamination and alters its plans if necessary. If the size of the hazard has expanded or decreased, relocate the signs. If the hazard is gone, remove the signs and report changes to higher HQ.

TYPES OF MARKERS

J-16. US forces use standard NATO markers to make it easier for allies to recognize the hazards. These markers are in the standard NBC marking set. Colors and inscriptions on a marker indicate the type of hazard. Other contamination information is written on the front of the sign.

RADIOLOGICAL CONTAMINATION DETECTION AND MONITORING

J-17. Conduct radiological monitoring using an AN/VDR2, and start on the order of the commander or as set by the SOP. Mark the area with radiological contamination markers. Report radiation dose rates and the times and locations of the readings to higher HQ using the NBC 4 nuclear report. All units start continuous monitoring when—

- Moving from one area to another on the battlefield.

- Getting a fallout warning.
- Knowing that a nuclear burst was reported, seen, or heard.
- Detecting radiation of 1 centigray per hour by periodic monitoring.
- Being ordered by the unit commander.

J-18. Continuous monitoring stops on order from the higher HQ or when the dose rate falls below 1 centigray per hour, except for units on the move.

TECHNIQUES FOR MONITORING

J-19. Use both direct and indirect techniques when conducting radiological monitoring. Refer to *FM 3-3* for more information on radiological monitoring.

Direct Monitoring

J-20. The direct technique is the simplest and the most precise. The soldier must—

- Stand at the desired location.
- Hold the RADIAC meter waist high and turn it slowly 360 degrees. Refer to *TM 11-6665-251-10*.
- Record the highest reading on *DA Form 1971-R*.
- Take the reading in the open, at least 10 meters from buildings or large structures, if possible.

Indirect Monitoring

J-21. Use the indirect technique inside shelters or vehicles. The soldier must—

- Stand at the center of the shelter.
- Hold the RADIAC meter 1 meter above the floor and slowly rotate it 360 degrees.
- Record the highest reading.
- Take all readings from one selected position when monitoring from inside a vehicle or shelter.

SURVEY TEAM

J-22. MP may be tasked to perform as part of a survey team. When essential contamination information cannot be obtained from monitoring reports, a radiological survey may be required. Radiological surveys are directed efforts to learn the extent and intensity of radiological contamination. A survey requires a control team and one or more survey teams. The HQ directing the survey usually provides the control team. In a team assigned to a survey—

- The team leader monitors the RADIAC meter and provides C^2 .
- The driver operates the vehicle.
- The gunner provides security.

J-23. The control team instructs the survey teams on what to do. The MP team leader ensures that each team member receives the following information from the control team:

- Purpose. The survey determines the presence and the level of fallout or induced radiation near ground zero, in a specific area, along a route, at a specific location, or any combination of these.
- Start and finish times. The times during which a survey will be conducted.
- Survey execution. The route to be followed and the locations where readings are to be made or the distances needed between the readings are given.
- Radiation safety precautions. The control team tells the survey team the turn-back dose. The dose rate is monitored on the AN/VDR2. If the turn-back dose rate is reached as the survey team travels forward, the team immediately leaves the fallout area by the same route used to enter it, unless instructed otherwise. If the dose rate decreases as the survey team moves ahead, the team continues to perform its mission.

- Recording limitations. The survey team will not convert inside readings to outside readings. Record readings in the dose rate column only.
- Communications. The method and times to be used to communicate survey data to the chain of command.
- Special instructions. Any special instructions for marking the contaminated areas or special security precautions.

CHEMICAL AGENT DETECTION

J-24. During routine operations, MP may detect chemical agents while making periodic checks for contamination. Or as previously discussed, teams may be tasked to conduct a chemical reconnaissance along an MSR or in a given area after an enemy attack. Some chemical agents are odorless, colorless, tasteless, and invisible. Teams must use chemical agent detection equipment and materials to be certain that all chemical agents are detected.

PREPARATION

J-25. When assigned a mission or a task to locate and mark a suspected contaminated area, MP leaders must ensure that they prepare properly for the mission. Preparation for any NBC reconnaissance mission begins with the inspection of personnel and equipment. As a minimum, each squad must have the following equipment on hand:

- M8 paper.
- M9 paper.
- M256 and M256A1 detector kits.
- M8A1 alarm.
- CAM.
- Marking kit.
- M13 decontamination apparatus (DAP).

- M291 decontamination kit.
- MOPP gear.
- Mark 1 nerve agent auto injector kit (NAAK).
- VS-17 marking panels.

J-26. In addition to ensuring that the proper equipment is on hand, leaders must ensure that alarms and paper are properly mounted and functional and that all external equipment is stowed. The platoon leader includes a rehearsal of NBC reconnaissance techniques when preparing the mission. The platoon leader coordinates with the unit chemical officer for any special instructions, ensuring that thorough decontamination support is available at the conclusion of the mission.

RECONNAISSANCE

J-27. When detecting for chemical contamination during NBC reconnaissance, the MP leader—

- Ensures that all members of the party wear MOPP 4 with M9 paper attached to their protective clothing and vehicle.
- Drives along the route until the chemical agent alarm sounds. By the time the alarm sounds, the team may be some distance from where the agent was first encountered. Keep this in mind when selecting the area to be searched.
- Gives special attention to shell craters, low-lying patches of woods, defiles, ravines, streambeds, and areas covered with high grass or underbrush.
- Has one MP remain in each vehicle to provide security and to monitor the radio.
- Has other patrol members dismount and check for contaminants.
- Ensures that one person uses M8 detector paper on the tip of a stick.

- Ensures that one person operates the M256 chemical agent detector kit. (Refer to *TM 3-6665-307-10* for detailed operating instructions for the M256, and refer to *FM 3-6* for more information.)

J-28. When MP find chemical contamination, they mark the area with NBC markers. They service the automatic chemical agent alarm to ready it for further operation. MP must be outside the contaminated area when the alarm is serviced. *TM 3-6665-312-12&P* provides instructions for operators and organizational personnel. MP remount the vehicles and continue the reconnaissance. While moving, they send an NBC 4 report by radio and follow this procedure each time a chemical agent is detected. The goal of the reconnaissance is to define the contaminated area only to the degree necessary to provide friendly forces with the information needed to avoid the area.

BIOLOGICAL AGENT DETECTION

J-29. For warning of biological attacks or contamination outside a unit's immediate area, the unit relies on warnings relayed through its chain of command from division level or higher units. MP help provide warning of biological hazards by their reports of area activity passed on from their route, zone, and area reconnaissance.

J-30. Be alert to any sign that biological agents are being used. Promptly report any unusual occurrences of sickness in troops or civilians. Report any unusual actions of animals, birds, or large numbers of dead animals or birds not likely to have been caused by combat. Observe the types of weapons and munitions used during attacks. Compare them to the known characteristics of enemy biological attacks. Refer to *FM 3-3* for detailed information on biological agent detection, identification, and defense.

J-31. Biological attacks are most likely to occur at night or during extended twilight to avoid toxin exposure to

direct sunlight. (Direct sunlight degrades biological agents.) Cloudy and foggy days are also favorable for the use of biological agents.

J-32. Watch for the following indications that a biological attack has occurred:

- A low-flying aircraft that appears to be producing a mist or a spray.
- The use of any type of spray device.
- The use of ammunition that does not seem to have any immediate effect, such as a bomblet.
- Unusual types of bomblets.
- Insect swarms that suddenly appear after an aircraft drops containers that do not seem to have any immediate effects.

SELF-DEFENSE MEASURES

J-33. MP not only provide early warning for units in the sustainment area, but they also employ NBC defense measures to protect their own forces. NBC defense is a balance of the following three principles:

- Avoidance.
- Protection.
- Decontamination.

AVOIDANCE

J-34. Avoiding NBC attacks and hazards is the key to NBC defense. Avoiding contamination involves bypassing contaminated areas and avoiding detection by the enemy. If forces avoid detection, they are less likely to be targeted for attack and will not need to apply protection and decontamination. *FM 3-3* provides detailed guidance on conducting contamination avoidance procedures.

J-35. NBC contamination avoidance is especially critical for light forces. Leaders conduct risk assessments to

determine what protective measures they will direct. Refer to *FM 3-4* for detailed information on conducting a risk assessment.

PROTECTION

J-36. A unit may become contaminated because of direct NBC attack or because the mission causes them to enter a contaminated area. In either case, NBC protection is an integral part of operations. Avoidance and protection are closely related. Techniques that work for avoidance also provide protection. There are four broad groups of activity that comprise protective measures and include the following:

- Hardening positions and protecting personnel.
- Assuming MOPP.
- Reacting to attack.
- Using collective protection.

J-37. Refer to *FM 3-4* for detailed guidance on conducting NBC protective procedures.

DECONTAMINATION

J-38. The extent and timing of decontamination depend on the tactical situation, the mission, the degree, the type of contamination, and the resources available. Refer to *FM 3-5* for detailed guidance on conducting decontamination operations.

J-39. The primary purpose of decontamination is to stop erosion of combat power and to reduce the number of casualties. Combat power drops as soon as personnel don MOPP gear. The mask restricts the field of vision and reduces observation and target acquisition ability. Communication is more difficult. Mobility is reduced because personnel reduce their physical work rate to avoid heat stress. The longer a unit remains contaminated, the greater the chance of NBC casualties. The three levels of decontamination are immediate, operational, and thorough.

Immediate Decontamination

J-40. Immediate decontamination is a basic soldier survival skill carried out by soldiers as soon as possible after they discover they are contaminated. Its basic purposes are to minimize casualties, save lives, and limit the further spread of contamination. Personnel treat any contact between chemical or biological agents and bare skin as an emergency. Some agents can kill if they remain on the skin for longer than a minute. The best technique for removing or neutralizing these agents is to use the M291 skin decontamination kit. Leaders must ensure that their soldiers are trained to execute this technique automatically, without waiting for orders.

J-41. Begin personal wipe down within 15 minutes of contamination. The wipe down removes or neutralizes contamination on the hood, mask, gloves, and personal weapon. For chemical and biological contamination, use mitts from the M295 individual equipment decontamination kit (IEDK). For radiological contamination, wipe off the contamination with a cloth or simply brush or shake it away.

J-42. Begin the operator's spray down of the equipment immediately after completing the personal wipe down. The spray down removes or neutralizes contamination on the surfaces that operators must touch frequently to perform their mission. For chemical and biological contamination, use on-board decontamination apparatuses, such as the M11, the M13, or the M295 IEDK to decontaminate surfaces where DS2 cannot be applied.

NOTE: Wash decontamination solution number 2 (DS2) off surfaces no more than 30 minutes after application. If necessary, use 5-gallon water cans or other water sources to assist in removing DS2.

J-43. For radiological contamination, brush or scrape away the contamination with whatever is at hand or flush it with water and wipe it away.

Operational Decontamination

J-44. Operational decontamination allows a force to continue fighting and sustain its mission after being contaminated. It limits the hazard of transferring contamination by removing most of the gross contamination on equipment and nearly all the contamination on soldiers. This speeds the weathering process and allows clean areas (people, equipment, and terrain) to stay clean. Following operational decontamination, soldiers who have removed sources of vapor contamination from their clothing and equipment unmask temporarily in hazard-free areas to eat, drink, and rest.

J-45. Accomplish operational decontamination using the assets of the parent unit. Make use of the following decontamination techniques:

- Vehicle wash down.
- MOPP gear exchange.

J-46. Conduct these procedures at the same time. They are best performed at squad level. Vehicles and personnel that are not contaminated should not go through either technique. Conduct vehicle wash down as far forward as possible. It is normally performed using the power-driven decontamination equipment (PDDE) crew with assistance from the squad decontamination crew. It is most effective if started within 1 hour after contamination.

J-47. The two steps in vehicle wash down are as follows:

Step 1. Button up the vehicle and secure the equipment.

Step 2. Wash down the vehicle and the equipment with hot, soapy water for 2 to 3 minutes.

J-48. Because speed is important, do not check vehicles for contamination after vehicle wash down. Remove only gross contamination.

Thorough Decontamination

J-49. Thorough decontamination reduces contamination to negligible risk levels. It restores combat power by removing nearly all contamination from the unit and individual equipment. This allows troops to operate equipment safely for extended periods at reduced MOPP levels. A contaminated unit conducts detailed troop decontamination (DTD) under the supervision of the chemical unit. Ordinarily, the chemical unit selects a site, sets it up, and performs the detailed equipment decontamination (DED) with assistance from the contaminated unit. A small risk from residual contamination remains, so make periodic contamination checks after this operation.

J-50. Conduct thorough decontamination as part of an extensive reconstitution effort in brigade, division, and corps support areas. Support sites at lower levels cannot provide the quantities of decontamination resources (water, decontaminants, and time) required for such an extensive process. In some cases, a contaminated unit could conduct a thorough decontamination operation with organic decontamination assets, but support from a chemical unit is usually required.

J-51. After thorough decontamination, the unit moves into an adjacent AA for reconstitution. Support elements from the brigade, division, or corps support areas replenish combat stocks, refit equipment, and replace personnel and equipment. The newly reconstituted unit leaves the AA fully operational and fit to return to battle.

J-52. Thorough decontamination does the best job of getting rid of contamination and its hazards, but it is often not possible. It requires large quantities of valuable resources that may not be immediately available. The next best solution is to decontaminate only what is necessary to sustain the force and continue to fight.

MILITARY POLICE LEADERS' RESPONSIBILITIES

J-53. MP leaders ensure that all soldiers understand the concepts of NBC defense and the skills necessary to survive an attack. Individual NBC skills include—

- Recognizing hazards and taking cover.
- Using protective measures and MOPP gear.
- Knowing avoidance measures, first aid, and decontamination.

J-54. MP commanders also designate and train special-purpose teams. These special-purpose NBC teams include the following:

- Chemical agent detection teams.
- Radiological survey and monitoring teams.
- Decontamination teams.

J-55. To assist with NBC defense, MP commanders rely on the unit NBC officer and the NBC NCO. They—

- Provide technical assistance to the commander on NBC defense training and operations.
- Coordinate unit NBC defense activities.
- Give NBC defense instructions to achieve basic operating standards of proficiency for the unit and individuals.
- Plan and supervise NBC defense training aspects of operational training exercises and maneuver.
- Supervise the preparation of unit NBC defense SOPs.
- Supervise the operation and maintenance of NBC material.
- Determine by dosimetry or calculation (as appropriate) the total dose of radiation and the time spent in radiologically contaminated areas to avoid exceeding command exposure guidance.
- Prepare fallout prediction patterns.

- Plan NBC reconnaissance and advise commanders on the best routes to cross or bypass an NBC contaminated area.
- Plan and coordinate decontamination within the unit.
- Maintain records of the unit's radiation exposure.
- Estimate downwind hazards for chemical attacks.
- Report NBC data to the next higher HQs.
- Analyze the unit's vulnerability to an NBC attack.
- Evaluate individual and unit competence in NBC defense, and advise the commander on the unit's ability to survive and continue operations in an NBC environment.
- Advise the commander on all matters pertaining to unit NBC defense.

MISSION-ORIENTED PROTECTION POSTURE LEVELS, ALARMS, AND SIGNALS

J-56. Soldiers on the integrated battlefield face a combination of NBC and conventional attacks. Individual and unit protection against chemical attack or contamination hinges on effective use of MOPP gear and on individual proficiency in basic NBC skills. All MP must be familiar with the standard MOPP levels shown in *Figure J-2, page J-24*, and *Table J-2, page J-25*.

J-57. When an NBC attack is recognized, every soldier receives the warning and assumes the appropriate MOPP level. Those in immediate danger need warnings they can see or hear. The alarm or signal must be simple and unmistakable for quick and correct reaction. Units not immediately affected need the information to prepare for the hazard or to change plans.

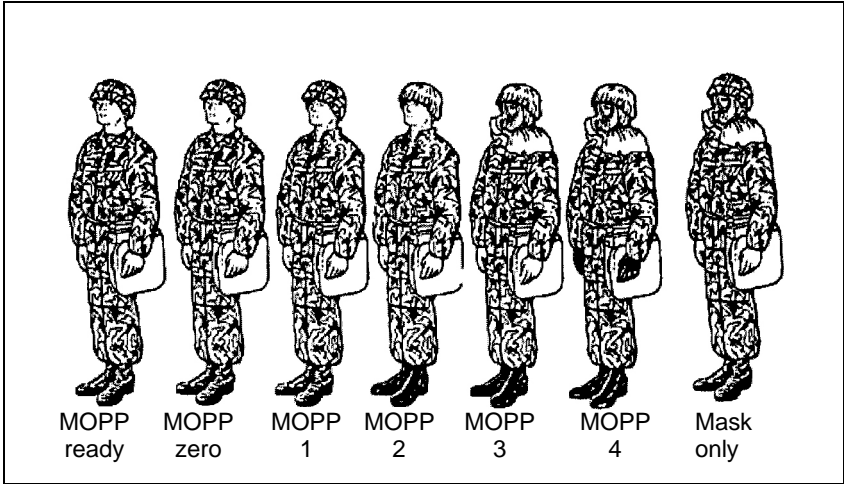


Figure J-2. Illustrated MOPP Levels

J-58. Mark the contaminated area if an NBC hazard has been located. The NBC Warning and Reporting System (NBCWRS) and the contamination markers contribute to the warning procedures for follow-on forces. In the immediate area of contamination, several methods (or a combination of methods) will allow quick reaction by all platoon members.

J-59. These methods include vocal alarms (shout of GAS), the M8A1 alarm, nonvocal alarms (horn blast or banging of metal-to-metal objects), and visual alarms (most commonly, hand-and-arm signals). The tactical situation may not allow for audible alarms; therefore, the platoon SOP should clearly detail the visual signals for contamination.

BIOLOGICAL DEFENSE

J-60. The key protective measure against a biological attack is maintaining a high order of health, personal

Table J-2. Standardized MOPP Levels

MOPP Equipment	MOPP Levels						Command
	MOPP Ready	MOPP Zero	MOPP 1	MOPP 2	MOPP 3	MOPP 4	
Mask	Carried	Carried	Carried	Carried	Worn ¹	Worn	Mask Only Worn
Overgarment	Ready ³	Available ⁴	Worn ¹	Worn ¹	Worn ¹	Worn	Available
Vinyl overboots	Ready ³	Available ⁴	Available ⁴	Worn	Worn	Worn	Available
Gloves	Ready ³	Available ⁴	Available ⁴	Available ⁴	Available ⁴	Worn	Available
Helmet protective cover	Ready ³	Available ⁴	Available ⁴	Worn	Worn	Worn	Available
Chemical protective undergarment ²	Ready ³	Available ⁴	Worn ²	Worn ²	Worn ²	Worn ²	Available

¹In hot weather, the coat or hood can be left open for ventilation.

²The chemical protective undergarment (CPU) is worn under the battle dress uniform (BDU) (applies to the special operation forces and armor vehicle crewman).

³Must be available to the soldier within 2 hours, and the second set must be available within 6 hours.

⁴Within arms reach of the soldier.

NOTE: Refer to Figure J-2 for an illustration of the MOPP levels.

hygiene, and sanitation discipline. Biological attacks are hard to detect. If an attack occurs, chances of survival are better if soldiers are healthy, physically fit, keep all immunizations up to date, and maintain good personal hygiene. Keep your body clean to prevent ingestion of biological agents. Keep small cuts or scratches covered and germ-free by using soap, water, and first aid measures. Since insects carry biological agents, keep clothes buttoned and your skin covered to prevent insect bites.

NUCLEAR ATTACK DEFENSE

J-61. MP can defend themselves against nuclear attack before, during, and after the event.

DEFENSE BEFORE A NUCLEAR ATTACK

J-62. The best defense against a nuclear attack is to dig in. Prepare unit defensive positions, which vary from individual foxholes to improved positions, whenever the tactical situation permits. Keep individual weapons, equipment, clothing, and other issue items in vehicles. Secure equipment because the blast wave will convert unsecured items into lethal missiles. Disperse and protect supplies, explosives, and flammable materials. Turn off all electronic equipment and remove antennas from vehicles.

J-63. Reverse slopes of hills and mountains give some nuclear protection. The initial radiation, heat, and light from the fireball of a nuclear blast tend to be absorbed by hills and mountains. Using of gullies, ravines, ditches, natural depressions, fallen trees, and caves can reduce nuclear casualties.

DEFENSE DURING A NUCLEAR ATTACK

J-64. Defense during a nuclear attack is either dismounted or mounted. When taking dismounted

defensive actions, never run for cover. Immediately drop flat on the ground (face down) or to the bottom of a foxhole, with your head toward the blast. Cover exposed skin as much as possible and close your eyes. Remain down until the blast wave has passed and debris has stopped falling. Stay calm, check for injury, check weapons and equipment for damage, and prepare to continue the mission.

J-65. MP in vehicles should exit and move away from the vehicle and take dismounted defensive actions.

DEFENSE AFTER A NUCLEAR ATTACK

J-66. Once the attack ends, forward an NBC 1 nuclear report, organize survivors, secure and organize equipment, assist casualties, improve protection against possible fallout, and begin continuous monitoring. If the radiation dose rate reaches a hazardous level after fallout is complete, be prepared to move, on order, to a less hazardous area.

Fallout Warning

J-67. The first person to detect the arrival of fallout is usually the radiological monitor operating a RADIAC meter. As soon as he notes a dose rate of 1 centigray per hour or higher, he warns unit personnel. All personnel hearing the warning relay it to others. If the mission allows, move into a shelter with overhead cover and stay there until given an *all clear* signal or until directed to move. If the mission does not allow the unit to take cover, decontamination becomes more important and perhaps more difficult.

Supervision of Radiological Monitoring

J-68. Perform radiological monitoring routinely with a AN/VDR-2 RADIAC meter to determine the presence and intensity of a radiation hazard. MP leaders must ensure that their teams are properly trained on this

equipment. The two types of monitoring is periodic and continuous.

J-69. Periodic Monitoring. Periodic monitoring (once every hour) assures the platoon that the area is not contaminated or, if applicable, provides a warning when contamination is detected after the platoon arrives. Periodic monitoring is initiated under the following conditions:

- After the first use of nuclear weapons in the theater of war.
- When the platoon is out of contact with higher HQ.
- When ordered by higher HQ.
- When the platoon stops continuous monitoring.

J-70. Continuous Monitoring. Continuous monitoring is the surveillance for radiation in the platoon's area or position. Initiate continuous monitoring when any of the following situations occur:

- When a nuclear detonation is observed or reported in the area of operations.
- When an NBC 3 report is received and the platoon is in the predicted area of contamination.
- When ordered by higher HQ.
- When a dose rate of 1 centigray per hour is recorded in periodic monitoring.

Supervision of Tactical Dosimetry Operations

J-71. Each MP team is issued a dosimeter. Selected soldiers wear them. Check all dosimeters to be used for the operation. Turn in dosimeters for recharging if they do not read zero. If a charger is not available, note the original reading. Ensure that the dosimeter readings are reported accurately. Collect readings at least once daily. Average these readings, round to the nearest 10, and report the average and the radiation exposure status (RES) to higher HQ.

J-72. Use individual actions for nuclear defense when operating in or crossing radiologically contaminated areas. Close vehicles tightly and cover cargoes with tarps or tenting. Mission permitting, keep the speed down to prevent dust. Vehicles should maintain adequate following distances to stay out of the dust raised by preceding vehicles.

J-73. After the unit exits a contaminated area, check personnel, equipment, and cargo for contamination and decontaminate them, if necessary. Monitor dose rates closely to ensure compliance with operational exposure guidance (OEG). Update the RES if appropriate.

CHEMICAL ATTACK DEFENSE

J-74. MP must be prepared to defend themselves before, during, and after a chemical attack.

DEFENSE BEFORE A CHEMICAL ATTACK

J-75. The best defense before a chemical attack is preparation. Use protective procedures. Ensure that all personnel have protective masks available, and ensure that each mask fits and functions properly. All personnel should wear the proper protective clothing according to the MOPP level designated by the commander. Protect all equipment and supplies from liquid chemical contamination by keeping them organized and covered.

J-76. Emplace an M8A1 automatic chemical agent alarm. The M8A1 is the primary means of detecting an upwind chemical attack. The system provides two essential elements of survival: detection of a toxic agent cloud and early warning to the troops in the monitored position. The platoon leader decides where to place the chemical alarm. Place the detector units no more than 150 meters upwind from the platoon's perimeter or position. Space the available detector units about 300 meters apart, and ensure that each detector unit is connected to the alarm unit by telephone cable (WD-1).

Position the alarm units near radiotelephone assets; this makes it easy to alert the unit of an attack. Blowing sand or dust, rain, sleet, snow, temperatures below 40 degrees Fahrenheit, and tropical conditions can affect the operation of the alarm.

J-77. If an NBC hazard cannot be avoided, soldiers must be prepared to protect themselves and equipment from the effects of exposure. Base the type and degree of protection required on the unit's mission and the hazard. Note that the line between contamination avoidance and protection is not distinct; many actions contribute equally to both.

DEFENSE DURING A CHEMICAL ATTACK

J-78. Give the alarm. All unmasked soldiers put on their protective masks and other MOPP gear. All personnel move inside their vehicles and close all doors and hatches, if applicable. This aids in the protection from gross liquid contamination. The platoon leader directs the use of M256A1 detector kits and the CAM to determine the type of agent, and he submits an NBC 1 report. The platoon then continues the mission.

DEFENSE AFTER A CHEMICAL ATTACK

J-79. Forward an NBC 1 chemical report, treat casualties, perform immediate decontamination as required, and mark the contaminated area.

SYMPTOMS AND TREATMENT OF CASUALTIES

J-80. Potential adversaries may have access to a wide variety of biological and chemical agents on the modern battlefield. These agents can be dispensed alone or with other carriers or agents. Casualties resulting from exposure to biological or chemical agents require medical treatment as quickly as possible.

J-81. The first step in the treatment process is usually appropriate self-aid and buddy-aid measures. These vary depending on the agent. Soldiers mask to prevent inhaling or ingesting additional agents and remove agents from exposed skin by washing with soap and water or using the M291 kit. They use buddy-aid procedures to observe each other for early symptoms of toxic exposure and provide medical assistance.

J-82. The platoon leader selects separate casualty collection points for contaminated and noncontaminated casualties to prevent cross contamination. Decontaminate all contaminated casualties as thoroughly as the situation allows before being evacuated. The platoon includes the number of contaminated patients in its casualty evacuation request. This allows the evacuation team to send the proper number of vehicles for pickup.

J-83. Chemical agents fall into four major categories: nerve, blister, blood, and choking. The primary routes of attack on the body are through the respiratory system and the skin. These agents are especially dangerous because they can kill or incapacitate quickly. The first, and most important, step in dealing with them effectively is to recognize symptoms so that proper treatment can be administered. *Table J-3, page J-32,* shows protection and detection measures, symptoms, and treatment and decontamination procedures for chemical agents.

UNMASKING PROCEDURES

J-84. Soldiers unmask as soon as possible except when a biological or chemical attack is expected. Use the procedures outlined in the following paragraphs to determine if unmasking is safe.

J-85. If an M256 or M256A1 detector kit is available, use it to supplement unmasking procedures. The kit

Table J-3. NBC Protection and Detection Chart

Agent Type	Protection	Detection	Symptoms	Effects	First Aid	Decontamination
Nerve	Protective mask and suit	M8A1, M256A1, CAM, M8 paper, or M9 paper	Difficult breathing, drooling, nausea, vomiting, convulsions, or blurred vision	Incapacitates	Use Mark 1 NAAK and convulsant antidote for nerve agents (CANA).	Use an M291 kit and flush eyes with water.
Blister	Protective mask and suit	M256A1, M8 paper, M9 paper, or CAM	Burning eyes, stinging skin, and irritated nose (no symptoms with mustard or nitrogen mustard)	Blisters the skin and damages the respiratory tract	Use the same procedures as for second- and third-degree burns. Refer to FM 21-11.	Use an M291 kit and flush eyes with water.
Blood	Protective mask	M256A1	Convulsions and coma	Incapacitates	None	None
Choking	Protective mask	Odor only (resembles newly-mown hay or green corn).	Coughing, choking, nausea, headache, and tightness in the chest	Floods and damages the lungs	Avoid movement and keep warm.	None

does not detect all agents; therefore, use the proper unmasking procedures, which take about 15 minutes. If all the tests with the kit (including a check for liquid contamination using M8 detector paper) have been performed and the results are negative, use the following procedures:

- The senior person selects one or two soldiers to start unmasking procedures. If possible, they move to a shady place. Bright, direct sunlight can cause pupils to constrict, giving a false symptom.
- The selected soldiers unmask for 5 minutes and then clear and reseal their masks.
- The leaders observe the unmasked soldiers for 10 minutes. If no symptoms appear, request permission from higher HQ to signal *all clear*.

J-86. The leaders watch the soldiers for possible delayed symptoms. Always have first aid treatment immediately available in case it is needed.

J-87. If an M256 or M256A1 kit is not available, unmasking procedures take about 35 minutes. When a reasonable amount of time has passed after the attack, find a shady area and use M8 paper to check the area for possible liquid contamination. Conduct unmasking using the following procedures:

- The senior person selects one or two soldiers. They take a deep breath and break their mask seals, keeping their eyes wide open.
- The soldiers clear and reseal their masks after 15 seconds. The leaders observe them for 10 minutes.
 - If no symptoms appear, the same soldiers break the seals, take two or three breaths, and clear and reseal their masks. Observe them for 10 minutes.

- If no symptoms appear after 10 minutes, the same soldiers unmask for 5 minutes and then remask.
- If no symptoms appear after 10 minutes, the leaders request permission from higher HQ to signal *all clear*. He continues to observe soldiers in case delayed symptoms develop.

J-88. Give the all-clear signal by word of mouth through the chain of command. Higher HQ initiates the all-clear signal after testing for contamination proves negative. If required, use standard sound signals, such as a continuous, sustained blast on a siren, a vehicle horn, or a similar device. When *all clear* is announced on the radio, it must be authenticated before compliance. The commander designates the specific all-clear signal and includes it in the SOP.