

**UNITED STATES MARINE CORPS**  
School of Infantry  
Training Command  
PSC Box 20161  
Camp Lejeune, NC 28542-0161

ICS0801  
03 Sept 03

**STUDENT OUTLINE**

**NBC PROTECTION**

**TERMINAL LEARNING OBJECTIVES**

1. Given NATO NBC markers, identify NATO NBC markers in accordance with FM 3-3 and with 75 percent accuracy. (MCCS.20.01)
2. Given chemical protective over-garments, chemical protective boots, a M-40 field protective mask with hood and carrier, M8 or M9 chemical protective paper, rubber gloves, and a NBC alarm, don individual protective clothing to MOPP 4 within eight minutes of receiving the NBC alarm. (MCCS.20.04)
3. Given a canteen with M-1 NBC cap, while in MOPP 4, perform basic functions while in MOPP 4 in accordance with TM 3-4240-300-10-1. (MCCS.20.05)
4. Given a list of choices, identify the characteristics of individual NBC detection measures in accordance with MCWP 3-37.2. (MCCS.20.06)
5. Given an individual weapon, while wearing a fighting load, react to a nuclear attack without warning in accordance with MCWP 3-37.2. (MCCS.20.09)
6. Given chemical protective over-garments, chemical protective boots, a M40 field protective mask with hood and carrier, M8 or M9 chemical detection paper, NBC gloves, and NBC alarm, react to a chemical or biological attack in accordance with MCWP 3-37.2. (MCCS.20.10)

**ENABLING LEARNING OBJECTIVES**

1. Given a canteen with a M-1NBC cap and a M40 field protective mask with hood, drink water from canteen while wearing M40 field protective mask in accordance with TM 3-4240-300-10-1. (MCCS.20.05a)
2. Given a list of choices, identify the characteristics of M8 detector paper in accordance with MCWP 3-37.2. (MCCS.20.06a)
3. Given a list of choices, identify the characteristics of M9 detector paper in accordance with MCWP 3-37.2. (MCCS.20.06b)

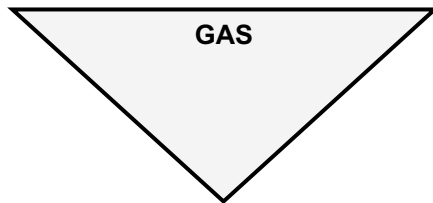
1. CHEMICAL MARKERS. Before we discuss the methods to protect ourselves and survive in an NBC environment, we need to be able to react to NBC alarms and NBC markers. You should have covered the different types of NBC alarms in Boot Camp, so we will go ahead and look at the different types of NBC NATO markers. Signs used for marking contaminated area are standard throughout

NATO in color and size. This permits easy identification, and allows us to readily warn our allies, and vice versa, of contamination on the battlefield.

a. In addition to color, signs are also a standard size and shape. The sign is a right-angled isosceles triangle. The base is approximately 11 ½ inches (28 centimeters) and the sides are approximately eight inches (20 centimeters). The sign is always placed with the point of the triangle facing down.

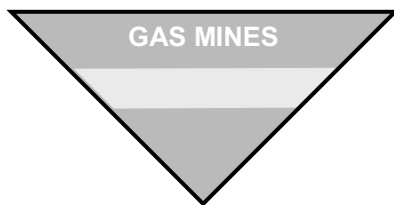
b. The four NATO NBC markers that you will be required to identify are as follows:

(1) Chemical. Areas that are known to be contaminated, by chemical agents will be marked with a yellow triangle with the letters "Gas" in red letters. The marker should also be marked with the type of agent, if possible, and the time and date of detection.



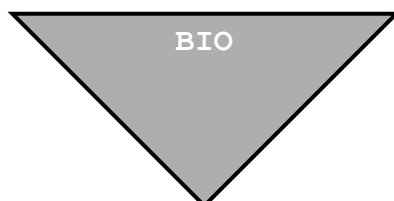
**Yellow Background  
With Red Lettering**

(2) Chemical Mines. Areas known to be containing chemical mines will be marked with a red triangle with the letters "Gas Mine" and a horizontal stripe in yellow. The marker should also contain the type of agent, if possible, and the date emplaced or discovered.



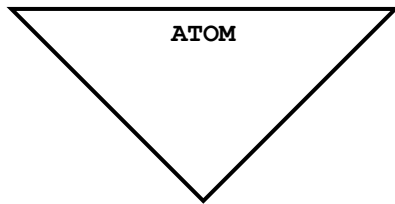
**Red Background with Yellow  
Lettering and Stripe**

(3) Biological. Areas known to be contaminated with biological agents will be marked with a blue triangle with the letters "BIO" in red. The marker should also be marked with the type of agent, if possible, and the time and date of detection.



**Blue Background  
With Red Lettering**

(4) Radiological. Areas known to be contaminated with radioactive material such that may exist after a nuclear attack will be marked with a white triangle with the letters "ATOM" in black.



**White Background  
With Black Lettering**

2. INDIVIDUAL PROTECTION. Individual protection involves actions taken by individual Marines to survive and continue the mission under NBC conditions. Individual protective clothing consists of the M40 field protective mask (FPM), NBC over garment jacket, NBC over garment trouser, NBC protective gloves, and NBC protective boots. Individual protective clothing, when properly worn, will protect the individual Marine from NBC agents. A Marine with proper training should be able to be at MOPP 4 in eight minutes. There are six levels of Mission Oriented Protective Posture, or MOPP that we must know. They are as follows:

a. MOPP READY. Carry the M40 FPM, protective clothing must be within two hours.

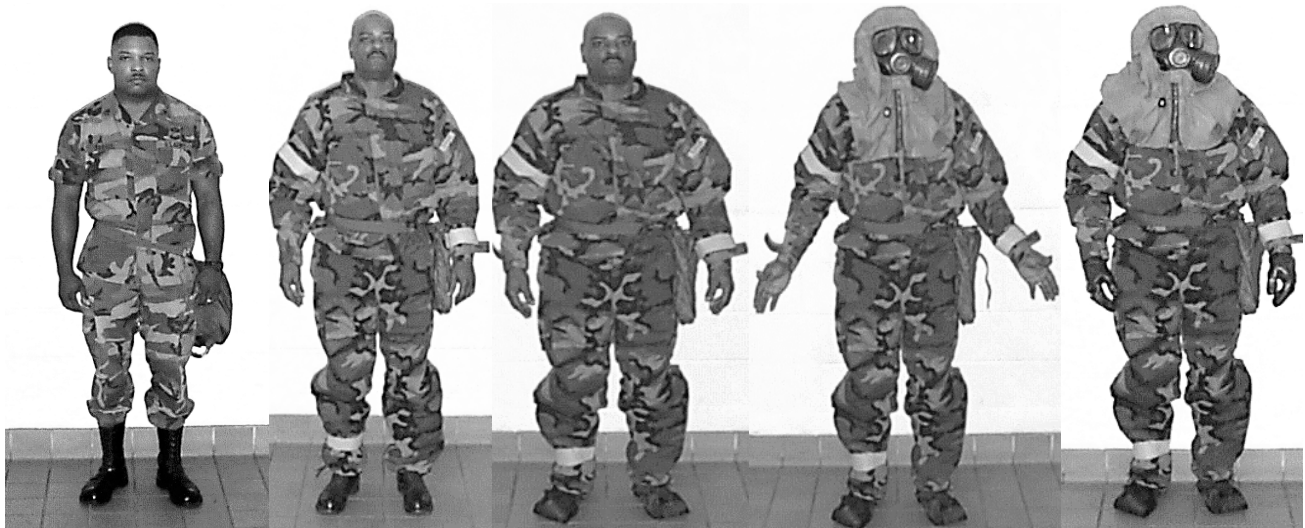
b. MOPP 0. Carry the M40 FPM, protective clothing must be readily available and carried by each Marine, or stored within arms reach.

c. MOPP 1. Carry the M40 FPM, protective over garment jacket is worn, protective over garment trousers is worn and may be unbuttoned.

d. MOPP 2. Carry the M40 FPM, NBC protective boots are worn, protective over garment trouser is worn and buttoned, protective over garment jacket is worn, but may remain unbuttoned in hot weather at the commander's discretion.

e. MOPP 3. Protective mask and hood is worn, in hot weather the protective hood may be rolled up, NBC protective boots are worn, protective over garment trouser is worn and buttoned, protective over garment jacket is worn, but the protective jacket may remain unbuttoned at the commanders discretion.

f. MOPP 4. All protective clothing including the protective gloves will be worn. The clothing will be buttoned up/rolled down. This level provides the highest degree of protection from chemical agents.



MOPP Levels				
MOPP 0	MOPP 1	MOPP 2	MOPP 3	MOPP 4

3. PERFORM BASIC FUNCTIONS WHILE IN MOPP 4. Marines must not only be able to react to an NBC attack, but they have to know how to function in an NBC environment. Marines may have to protect themselves by remaining in MOPP 4 for a long period of time, so the following are necessary skills required to sustain themselves in an NBC environment:

a. Drink water from a canteen

(1) Remove the canteen from the pouch and ensure it has an NBC cap on it.

(2) Hold the canteen at mask level and insert the drinking tube into the NBC cap on canteen, ensuring a good seal, and blow into the canteen through the drinking tube to create an overpressure in the canteen.

(3) Invert the canteen at nose level and drink from the canteen.

(4) Upon finishing drinking, remove the drinking tube from the canteen cap.

(5) Replace the canteen in pouch.

b. Urinate and Defecate. A Marine must mentally understand that urinating and defecating in NBC protective clothing may be necessary for survival. MOPP gear exchange will occur as soon as possible as determined by unit commander or higher authority. At no time will a Marine remove any protective clothing in order to urinate or defecate, unless decontamination and MOPP gear exchange is available.

c. Change filter canister on M40 FPM

(1) Stop Breathing.

(2) Hold the mask tight to face with one hand.

(3) Remove the filter canister by unscrewing.

(4) Install the new filter canister by screwing it on.

(5) Clear and seal the FPM.

d. Sleep. A Marine must mentally understand that sleeping in NBC protective clothing may be necessary for survival. If Marines must sleep while at MOPP 4, they should ensure not to have any Marines asleep without other Marines to watch over the sleeping Marines. MOPP gear exchange will occur as soon as possible as determined by unit commander or higher authority. At no time will a Marine remove any protective clothing in order to sleep while in an NBC environment.

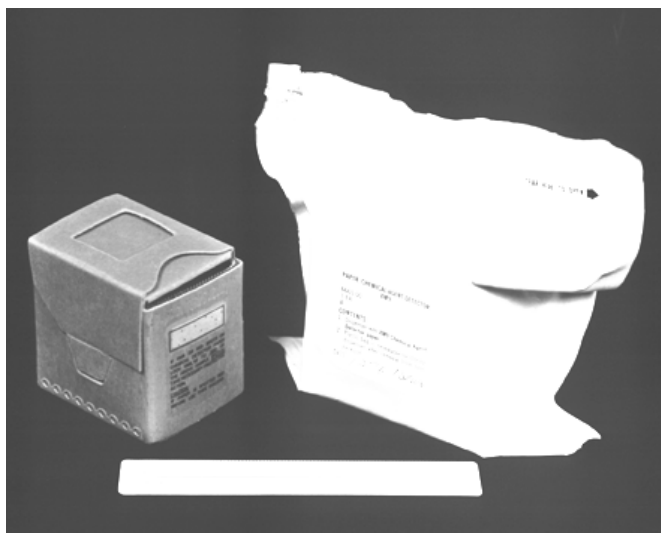
4. DETECT CHEMICAL AGENTS. Marines must understand that they may not always be warned of a chemical attack, and that they may be required to know how to

detect such an attack and warn others. Unless designated and trained in utilizing NBC detection equipment, most Marines have only basic individual detection methods and equipment to aid them in detecting a chemical attack. These methods and equipment are as follows:

a. Observation. Observation of your surroundings is perhaps the most basic method utilized for detecting a chemical attack. Some signs of a possible chemical attack are:

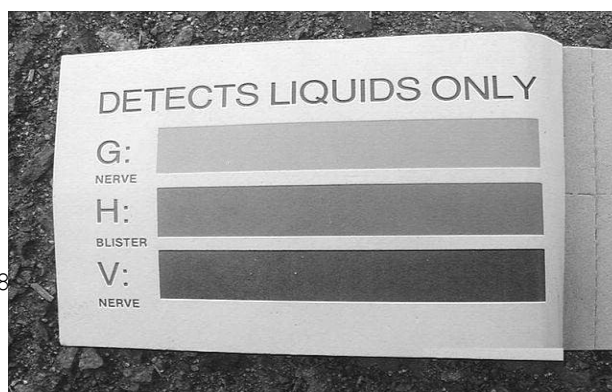
- (1) Unexplained difficulty in breathing or increased rate of breathing.
- (2) Unexplained or unusual behavior without evident cause.
- (3) Personnel suddenly collapsing without evident cause.
- (4) Animals exhibiting unusual behavior and/or sudden unexplained death.
- (5) Smoke or mist of unknown source is present or approaching.

b. Utilize M9 Chemical Agent Detector Paper (CADP). M9 CADP, also referred to as M9 Tape, is usually issued when higher command determines that there is a possible or eminent threat of a chemical attack. M9 CADP is usually issued one roll per squad or gun team. Normally, M9 CADP will be issued when NBC protective suits, gloves, and boots are issued. M9 CADP comes in rolls that have self-adhesive on one side like a roll of tape. Once Marines are at MOPP 1, the M9 CADP should be torn off the roll in sufficient lengths so as to wrap around the upper portion of the right arm, left wrist, and either ankle. One roll of M9 CADP is more than enough to equip a squad. M9 CADP will indicate the presence of a liquid chemical agent. It does not detect chemical agents' vapors. The tape will turn red or reddish color when it detects a liquid chemical agent. Certain types of organic liquid will cause false readings, but any time the M9 CADP turns colors, you are to assume it is indicating the presence of a chemical agent, and should therefore don protective clothing and FPM to MOPP 4, sound the alarm, and report to higher authority the possible presence of chemical agents. Because M9 CADP can give false readings, no Marines will proceed to a lower level of MOPP unless told to do so by higher authority. The unused M9 CADP should be kept in the plastic container provided, or any water-type package, in order to prevent it from coming in contact with any liquids.



c. Utilize ABC-M8 Chemical Agent Detector Paper (CADP). ABC-M8 CADP, also referred to as M8 CAPD, is usually issued with the FPM when higher command determines that there is a possible or eminent threat of a

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chemical attack. M8 CADP comes in booklets of 25 sheets. M8 CADP is utilized to detect and identify certain liquid chemical agents. M8 CADP detects only liquid chemical agents. It does not detect chemical agents' vapors. The M8 CADP is impregnated with chemical compounds that turn the paper:

- (1) Yellow - G type nerve agent.
- (2) Red - H blister agent.
- (3) Dark Green - V type nerve agent.

The color the paper turns aids in identifying the type of liquid chemical agent present. There is a reference color chart in the front of each booklet of M8 CADP that will help in identifying the type of liquid chemical agent present. Some solvents, mostly petroleum based, can cause M8 CADP to indicate false readings, but any time the M8 CADP changes colors, you are to assume it is indicating the presence of a chemical agent, and should therefore don protective clothing and FPM to MOPP 4, sound alarm, and report to higher authority the possible presence of chemical agents. Because M8 CADP can give false readings, no Marines will proceed to a lower level of MOPP unless told to do so by higher authority. The unused M8 CADP should be kept in the plastic container provided, or any watertight package, in order to prevent it from coming in contact with any liquids.

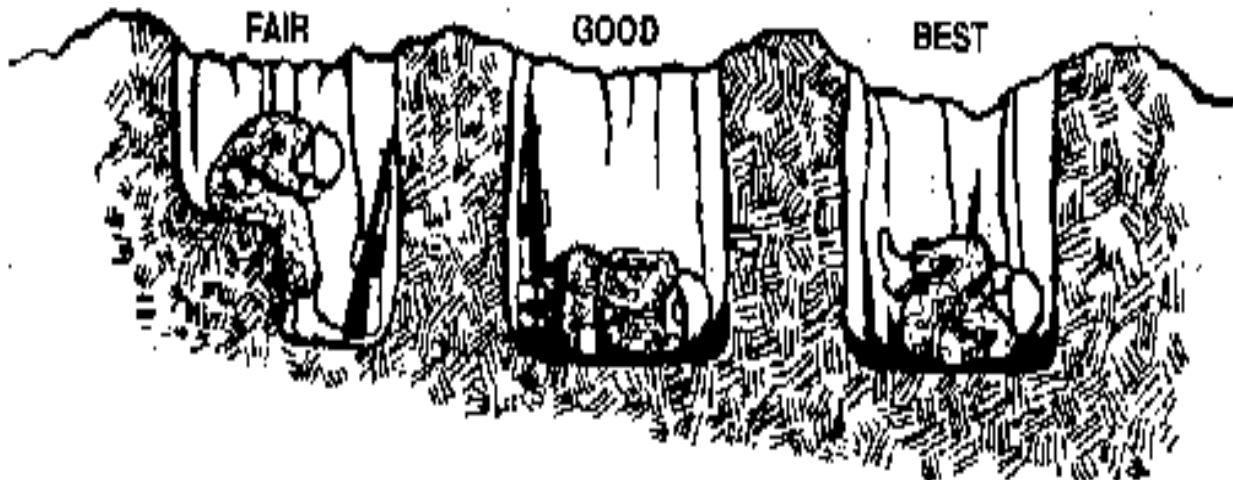
#### 5. REACT TO A NUCLEAR ATTACK

a. Without a Warning. Upon seeing a brilliant flash of light, hearing a loud explosion, or when the alarm is sounded you must immediately react.

(1) Never hesitate in taking immediate action. When possible, look for protective cover. Drop face down with your head or feet towards the blast. Lie flat with you legs crossed and arms underneath your body. If you have a weapon, you will be lying on top of it.

(2) Remain down until blast wave has passed and all debris has stopped falling.

b. When in a Fighting Hole



(1) If in a fighting hole, you should lie on your back with your knees drawn tight to your chest and your fists lying in your eye sockets. You should remain down until blast wave has passed and all debris has stopped falling.

(2) Once all debris has stopped falling, cover the top of your fighting hole with your poncho or some other protective cover. This material will protect you from the radioactive fallout.

#### 6. REACT TO A CHEMICAL/BIOLOGICAL ATTACK

a. Chemical/Biological Gas Attack. This has to be done within 8 minutes of receiving the alarm.

(1) The first thing that must be done is to stop breathing and close your eyes. Then you must don and clear your M40 FPM. Your mask must be donned, cleared, and sealed within 9 seconds.

(2) Once your mask is on correctly, you must sound the alarm to spread the warning. You will use the vocal and visual alarms.

(3) You must continue to don your chemical protective over garment trousers, blouse, boots, and gloves. Remember, this has to be completed within 8 minutes. DO NOT substitute quickness for accuracy!

b. React to a Chemical Spray Attack. The steps to reacting to a chemical spray attack are the same as a gas attack, except that after you have donned and cleared your FPM, you should seek cover, if possible, from the spray, and then complete donning protective clothing to MOPP 4. This must also be completed within 8 minutes. If you are able to seek cover from the spray, you should avoid coming out from cover until all spray has ceased.

#### **REFERENCES :**

FM 3-3 Chemical and Biological Contamination Avoidance, pages 5-6 through 5-7.

MCWP 3-37.2 NBC Protection, pages 1-0 through 1-6, 2-2 through 2-5, 2-6 through 2-11, 3-6, 3-7, 4-1 through 4-10 and 5-2 through 5-3.

TM 3-4240-300-10 Operator's Manual for Chemical-Biological Mask, M-40, pages 2-74 through 2-80.



**PERFORMANCE EXAMINATION CHECKLIST**

**EXAM TITLE:** NBC Protection Performance Examination (Don Individual Protective Clothing to MOPP 4)

**EXAM ID:** ICS0801P

Evaluator: \_\_\_\_\_ Student: \_\_\_\_\_

Course Number: \_\_\_\_\_

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Total Time: \_\_\_\_\_

**EVALUATOR INSTRUCTIONS:**

1. Each Marine will be assessed individually on this task.
2. The requirements and procedures outlined in the Assistant Instructor Guide for the appropriate lesson will be used to conduct this performance examination.
3. Each student has 8 minutes from the issuance of the NBC alarm to complete this task.
4. This examination is evaluated mastery or non-mastery. Utilize the Performance Examination Checklist to record student performance. To achieve mastery, a Marine must perform each of the performance steps correctly, in order, and in the time allotted.

**STUDENT INSTRUCTIONS:**

1. You are an infantryman operating in a combat environment and receive an alarm to don personal protective equipment to MOPP level 4.
2. You have 8 minutes from the issuance of the alarm to complete this task.
3. To achieve mastery, you must perform each of the performance steps correctly, in order, and in the time allotted.

**PERFORMANCE STEPS AND/OR PERFORMANCE STANDARD:**

Performance Steps	Master	Non-Master	Remarks
1. Don the over-garment and attach M8 or M9 chemical detection paper to the over-garments to achieve MOPP 1.			
2. Don the over boots with trousers closed to achieve MOPP			
3. Don the M40 field protective mask with hood to achieve MOPP 3.			
4. Don the rubber gloves, button closed the over-garment blouse, roll down and adjust the field protective mask hood to assume MOPP 4.			

**EXAM TITLE:** NBC Protection Performance Examination (Perform Basic Functions While in MOPP 4)

**EXAM ID:** ICS0801P

Evaluator: \_\_\_\_\_ Student: \_\_\_\_\_

Course Number: \_\_\_\_\_

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Total Time: \_\_\_\_\_

**EVALUATOR INSTRUCTIONS:**

1. Each Marine will be assessed individually on this task.
2. The requirements and procedures outlined in the Assistant Instructor Guide for the appropriate lesson will be used to conduct this performance examination.
3. There is no time limit for this task.
4. This examination is evaluated mastery or non-mastery. Utilize the Performance Examination Checklist to record student performance. To achieve mastery, a Marine must perform each of the performance steps correctly, in order, and in the time allotted.

**STUDENT INSTRUCTIONS:**

1. You are a Marine infantry operating in a NBC contaminated environment in MOPP level 4 and must drink from a canteen without becoming a casualty.
2. There is no time limit for this task.
3. To achieve mastery, you must perform each of the performance steps correctly and in order.

**PERFORMANCE STEPS AND/OR PERFORMANCE STANDARD:**

Performance Steps	Master	Non-Master	Remarks
1. Push in on the top of the outlet valve with your finger.			
2. Grasp the internal drink tube between your teeth, taking care not to break the face-piece seal.			
3. Steady the face-piece.			
4. Pull the quick disconnect coupling out of the outlet valve cover.			
5. Remove the canteen from the canteen carrier.			
6. Check the quick disconnect coupling and canteen cap for contamination using M8 detector paper.			
7. Flip open the cover on the M1 canteen cap.			

8. Push the quick disconnect coupling into the M1 canteen cap so that the pin enters the quick disconnect coupling.			
9. Blow to create positive pressure. You should feel some resistance. If resistance is not felt, your drinking system is leaking. Do not try to drink.			
10. Take several swallows of water from the canteen if it doesn't leak by raising and inverting the canteen.			
11. Equalize pressure in the canteen after several swallows by lowering the canteen and blowing into the internal drink tube to prevent the canteen from collapsing.			
12. Blow into the internal drink tube.			
13. Turn the canteen upright.			
14. Blow into the internal drink tube.			
15. Pull the quick disconnect coupling out of the canteen.			
16. Detach the canteen by grasping the quick disconnect coupling firmly and pulling the canteen down and away to disconnect the coupling.			
17. Check your face-piece for leaks.			
18. Remove the internal drink tube from your mouth.			
19. Push the quick disconnect coupling back into the pocket on the face-piece.			
20. Flip down the cover on the M1 canteen cap before stowing.			

**EXAM TITLE:** NBC Protection Performance Examination (Perform NBC Detection Measures)

**EXAM ID:** ICS0801P

Evaluator: \_\_\_\_\_ Student: \_\_\_\_\_

Course Number: \_\_\_\_\_

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Total Time: \_\_\_\_\_

**EVALUATOR INSTRUCTIONS:**

1. Each Marine will be assessed individually on this task.
2. The requirements and procedures outlined in the Assistant Instructor Guide for the appropriate lesson will be used to conduct this performance examination.
3. There is no time limit for this task.
4. This examination is evaluated mastery or non-mastery. Utilize the Performance Examination Checklist to record student performance. To achieve mastery, a Marine must perform each of the performance steps correctly.

**STUDENT INSTRUCTIONS:**

1. You are an infantry rifleman and must utilize M8 and M9 detector paper to detect chemical agents.
2. There is no time limit for this task.
3. To achieve mastery, you must perform each of the performance steps correctly.

**PERFORMANCE STEPS AND/OR PERFORMANCE STANDARD:**

Performance Steps	Master	Non-Master	Remarks
<b>DEMONSTRATE THE USE OF M8 DETECTOR PAPER</b>			
1. Detach sheet from booklet.			
2. Place sheet in liquid. Place sheet in liquid.			
3. Allow for color transformation.			
4. Compare color transformation to color scale on the inner cover of the booklet.			
<b>DEMONSTRATE THE USE OF M9 DETECTOR PAPER</b>			
1. Place M9 detector paper on clothing at the upper portion of the arm, left wrist, or left or right ankle.			
2. Place M9 detector paper on equipment. Ensure it is placed on a location free of dirt oil and grease and where it will not be stepped upon.			

**EXAM TITLE:** NBC Protection Performance Examination (React to Nuclear Attack)

**EXAM ID:** ICS0801P

Evaluator: \_\_\_\_\_ Student: \_\_\_\_\_

Course Number: \_\_\_\_\_

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Total Time: \_\_\_\_\_

**EVALUATOR INSTRUCTIONS:**

1. Each Marine will be assessed individually on this task.
2. The requirements and procedures outlined in the Assistant Instructor Guide for the appropriate lesson will be used to conduct this performance examination.
3. There is no time limit for this task.
4. This examination is evaluated mastery or non-mastery. Utilize the Performance Examination Checklist to record student performance. To achieve mastery, a Marine must perform each of the performance steps correctly and in order.

**STUDENT INSTRUCTIONS:**

1. You are an infantryman operating in a combat environment and identify indications of a nuclear detonation.
2. There is no time limit for this task.
3. To achieve mastery, you must perform each of the performance steps correctly and in order.

**PERFORMANCE STEPS AND/OR PERFORMANCE STANDARD:**

Performance Steps	Master	Non-Master	Remarks
1. Drop face down on the ground, feet towards the blast, arms and weapon under you.			
2. Close eyes.			
3. Protect exposed skin from heat by putting hands and arms under or near the body and keeping the helmet on.			
4. Remain face down until the blast wave passes and debris stops falling.			
5. Stay calm, check for injury, check weapons and equipment for damage, and prepare to continue the mission.			

**EXAM TITLE:** NBC Protection Performance Examination (React to a Chemical or Biological Attack)

**EXAM ID:** ICS0801P

Evaluator: \_\_\_\_\_ Student: \_\_\_\_\_

Course Number: \_\_\_\_\_

Start Time: \_\_\_\_\_ Stop Time: \_\_\_\_\_ Total Time: \_\_\_\_\_

**EVALUATOR INSTRUCTIONS:**

1. Each Marine will be assessed individually on this task.
2. The requirements and procedures outlined in the Assistant Instructor Guide for the appropriate lesson will be used to conduct this performance examination.
3. Each student has 10 minutes from the issuance of the NBC alarm to complete this task.
4. This examination is evaluated mastery or non-mastery. Utilize the Performance Examination Checklist to record student performance. To achieve mastery, a Marine must perform each of the performance steps correctly, in order, and in the time allotted.

**STUDENT INSTRUCTIONS:**

1. You are an infantryman operating in a combat environment and identify indications of a nuclear detonation.
2. You have 10 minutes from the issuance of the NBC alarm to complete this task.
3. To achieve mastery, you must perform each of the performance steps correctly, in order, and in the allotted time.

**PERFORMANCE STEPS AND/OR PERFORMANCE STANDARD:**

Performance Steps	Master	Non-Master	Remarks
1. Stop Breathing.			
2. Don protective mask.			
3. Sound the alarm.			
4. Kneel or crouch with weapons across knees.			
5. Get under poncho.			
6. Wait 90 seconds prior to movement.			
ASSUME MOPP 4			
1. Don the over-garment and attach M8 or M9 chemical detection paper to the over-garments to achieve MOPP 1.			
2. Don the over boots with trousers closed to achieve MOPP			

4. Don the rubber gloves, button closed the over-garment blouse, roll down and adjust the field protective mask hood to assume MOPP 4.			
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Non-  
Overall Evaluation:   Mastery   Mastery

Comments and Remarks:

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