

LESSON PLAN

PART I
COVER SHEET

LESSON TITLE: Groundcrew Chem-Defense Ensemble (GCE)

TRAINING METHOD: Demonstration-Performance

REFERENCES: Technical Order (T.O.) 14P3-1-141, Groundcrew Chem-Defense Ensemble

AIDS AND HANDOUTS: One training groundcrew chem-defense ensemble per student
PIN 606041DF (B Block), B3 - Groundcrew Chem-Defense Ensemble

LESSON OBJECTIVE: Given information and a demonstration on the donning and doffing of the GCE, the student will properly perform all of the task steps listed below. Given a lecture on the groundcrew ensemble, the student during the final course exam, must correctly answer questions demonstrating mastery of at least three samples of behavior listed below:

TASK STEPS:

1. Inspect the GCE for serviceability.
2. Demonstrate how to don the GCE in an uncontaminated environment.

SAMPLES OF BEHAVIOR:

1. State the purpose of the GCE.
2. Identify the protective capabilities of the GCE.
3. Identify the components of the GCE.
4. State the procedures used to identify personnel wearing the GCE.

ORGANIZATIONAL PATTERN: Sequential

SUGGESTED COURSE(S) OF INSTRUCTION: NBC Defense Course

STRATEGY: The GCE protects the whole body, but only if worn correctly. Ensure the student can properly don the GCE. Stress the protective capabilities and inspection criteria for the GCE. Although the GCE components worn by an individual varies by Mission-Oriented Protective Posture (MOPP) level, this RTP addresses all components. The MOPP system is taught in RTP C12. Use RTP C10 to teach specifics on the protective masks. Also use RTP F17 to instruct how to don and doff an ensemble in a contaminated environment.

LESSON OUTLINE:

- MAIN POINT 1. PURPOSE OF THE GCE

- MAIN POINT 2. GCE COMPONENTS
 - A. Overgarment
 - B. Footwear Covers
 - C. Protective Gloves
 - D. Glove Inserts

- MAIN POINT 3. GCE SHELF-LIFE AND SERVICE LIFE
 - A. Shelf-life
 - B. Service-life
 - C. GVO/BVO Service-life

- MAIN POINT 4. USE OF UNSERVICEABLE AND TRAINING GCE

- MAIN POINT 5. INSPECTION AND DOCUMENTATION
 - A. Inspection
 - B. Documentation

- MAIN POINT 6. WEARING THE GCE

- MAIN POINT 7. PERSONNEL IDENTIFICATION

- MAIN POINT 8. DORNING AND DOFFING THE GCE
 - A. Donning
 - B. Doffing

PART II
TEACHING PLAN
INTRODUCTION

- ATTENTION:** Chemical warfare agents can be very harmful, even deadly, not only by inhalation, but also through contact with your skin.
- MOTIVATION:** The groundcrew chem-defense ensemble (GCE) will protect the wearer from physical contact with chemical and biological agents, but only if you wear it correctly.
- OVERVIEW:** This lesson will cover:
1. The purpose of the GCE.
 2. The components and description of each.
 3. GCE shelf-life and service-life.
 4. Using unserviceable and training GCE.
 5. Inspection and documentation of GCE.
 6. Wearing instructions
 7. Personnel identification while wearing the GCE.
 8. GCE donning and doffing procedures.
- TRANSITION:** We will begin this lesson by covering the purpose of the GCE.

BODY

MAIN POINT 1.
PURPOSE OF THE
GCE

The GCE provides individual protection by preventing field concentrations of chemical warfare agents from physical contact with the wearer.

MAIN POINT 2.
GCE COMPONENTS

The components that make up a GCE are:

⇒ A protective mask (M17 or MCU-2/P series) and hood

⇒ The overgarment

⇒ Protective gloves and inserts

⇒ Footwear covers

TRANSITION:

Now lets talk about each component in more detail.

INSTRUCTOR'S NOTE: Show the students an actual GCE to explain the various components.

A. OVERGARMENTS-
TWO TYPES

A. The overgarment is a two-piece garment (jacket and pants) made of two layers of permeable material. The outer nylon and cotton layer is treated with a rain repellent. The inner layer is a charcoal impregnated foam.

CPO

When chemical agents contact the overgarment, the outer layer absorbs and spreads the agent and prevents saturation of the charcoal inner layer.

There are presently two types of overgarments available. The chemical protective overgarment (CPO) was the first type fielded. It can be distinguished by its solid olive drab color. The CPO is now seen only in a training environment.

BDO

The other garment is the battle dress overgarment (BDO). It can be distinguished by its camouflage pattern. This newer version provides better water repellence, protection, and durability.

(1) OVERGARMENT
SIZES

(1) The overgarment comes in eight sizes:

- ⇒ XXX Small
- ⇒ XX Small
- ⇒ X Small
- ⇒ Small
- ⇒ Medium
- ⇒ Large
- ⇒ X Large
- ⇒ XX Large

(2) JACKET

(2) The jacket has full length sleeves, a stand-up collar, pockets, and is secured by a full length front zipper covered by a protective flap. An elastic draw cord is sewn into the jacket. Three snaps are in the rear of the waist opening. They join the jacket and pants to prevent separation during bending or stooping.

(3) PANTS

(3) The pants have pockets, belt and suspender loops, two adjustable waist straps, and three snaps in the rear. Pants are secured by a front zipper fly, protective flap secured by snaps, and a zipper at the base of each leg.

B. FOOTWEAR
COVERS

B. There are three types of footwear covers that can be worn with the GCE:

- ⇒ Four eyelet type
- ⇒ Five eyelet type
- ⇒ Green/black vinyl overshoes
(GVOs/BVOs)

(1) FOUR AND FIVE
EYELETS

(1) The four- and five-eyelet footwear covers are made of butyl rubber and are impermeable to liquid and vapor agents. Reinforced eyelets are located on the front, sides, and rear of each sole to accommodate laces that secure them over the wearer's boots.

The four- and five-eyelet footwear covers come in two sizes: small or large. The covers may be worn on either foot, and the bottom of the sole has raised rubber to improve traction and durability. The only difference in the four- and five-eyelet covers is that the five-eyelet covers provide a more secure fit.

(2) GVO/BVO

(2) The green/black vinyl overshoe (GVO/BVO) is made of vinyl plastic, which is impermeable to liquid and vapor agents and is designed to be worn over your utility boots.

The GVO/BVO is donned and doffed in the same sequence as four- and five-eyelet footwear covers. The GVO/BVO comes in sizes 3 through 14. (A size 9 GVO/BVO is supposed to fit over a men's size 9 utility boot, however it has been noted to go two sizes higher).

C. PROTECTIVE
GLOVES

C. The protective gloves are gauntlet style meaning they're long; covering the forearm and made of butyl rubber. They come in four sizes: small, medium, large, and extra large. Two glove thickness is available:

14 MIL

⇒ The 14 mil, or millimeters, thick gloves are standard for field use.

7 MIL

⇒ The 7 mil gloves are used in situations where increased finger dexterity is required, prolonged contact with petroleum, oil, and lubricants (POL) products is not expected, and where the probability of liquid contamination is low.

D. GLOVE INSERTS

D. Glove inserts are thin cotton gloves designed to absorb perspiration. They are also gauntlet-style and come in sizes small, medium, and large.

TRANSITION:

Now let's talk about the shelf- and service-life of the GCE.

MAIN POINT 3.
GCE SHELF-LIFE
AND SERVICE-LIFE

Some of the components of the GCE have either a shelf-life or service-life that must be adhered to. Overgarments in factory bags opened from holes, tears, or seam splits should be considered serviceable provided the overgarment has not been exposed to direct moisture, smoke, fuel, or solvent vapors. If the fabric under the packaging hole or tear is undamaged and clean, seal the breach with strong packaging tape.

A. SHELF-LIFE

A. Shelf-life of the GCE is controlled through the DoD stockpile surveillance program. Units are notified through supply channels when an overgarment has reached its expiration date. The BDO has a 12-year, nonextendible shelf-life.

B. SERVICE-LIFE

B. Service-life is how long the overgarment can be worn without degradation. Service-life or wear time is influenced primarily by wear.

BDO - 22 DAYS

The BDO service-life is 22 days once you remove it from the factory bag and don it. Wear time may be extended to 30 days with slight increase in risk. This is done at the discretion of the commander. Extension of the BDO wear time beyond 22 days depends on the physical condition of the BDO. If it is heavily worn or soiled, the service-life should not be extended.

24 HOURS - CONTACT WITH LIQUID

After contact with liquid chemical agents, the BDO must be changed within 24 hours.

C. GVO/BVO SERVICE-LIFE

C. The GVO/BVO provides 12 hours of protection against chemical warfare agents following contamination. Wear time following contamination may be extended to 24 hours if necessary with some increase in risk.

The GVO/BVO will provide complete protection for up to 14 days of unchallenged or cumulative wear provided it is free from cracks, tears, and punctures. Avoid exposing the GVO/BVO to the decontaminant called DS2.

DS2 deteriorates the GVO/BVO making it turn black and makes the soles very slick.

MAIN POINT 4.
USE OF
UNSERVICEABLE
AND TRAINING
GCE.

Common sense tells us we should not use unserviceable overgarments in an actual wartime environment. However, equipment may be used for training purposes.

Rubber components, such as the gloves and boots, may be used for training or in an actual chemical warfare environment after depletion of operational stocks. They must meet the serviceability inspection prior to use.

STORE TRAINING AND
OPERATIONAL ITEMS
SEPARATELY

Training items do not require inspection or special training marking, but they should be stored separately from operational equipment.

MAIN POINT 5.
INSPECTION AND
DOCUMENTATION

How do you know if your GCE is operational? It's important you know how to inspect your GCE. Document the inspection to track shelf-life and identify discrepancies.

A. INSPECTION

A. Inspecting your GCE is a simple task.

INSTRUCTOR'S NOTE: Use T.O.14P3-1-141 to teach inspection procedures.

B. DOCUMENTATION

B. Anytime you inspect your GCE, you should document the inspection.

MAIN POINT 6.
WEARING THE
GCE

KEEP GCE DRY

KEEP GCE AWAY
FROM POL

WASH ONLY TRAINING
GCE

INSTRUCTOR'S NOTE: Go over local procedures for documenting inspection of GCE.

Now let's discuss how to wear the GCE.

The overgarment is designed to be worn over the duty uniform. Wear heavy winter jackets, parkas, body armor, or wet weather gear over the overgarment.

Use wet weather gear to keep the overgarment dry. A wet overgarment will afford some protection; however, its protective capabilities are reduced.

Protection provided by the overgarment is degraded in the areas where it is saturated by petroleum products or exposed to direct moisture, smoke, fuel, or solvent vapors.

Do not wash your operational overgarment, because washing will eliminate its capability to protect against chemical warfare agents. Overgarments used for training may be washed with low sudsing soap, warm water, and dried with cool air.

INSTRUCTOR'S NOTE: Use RTP F17 to instruct donning/doffing procedures in a contaminated environment.

TRANSITION:

If everyone is in the GCE, how will you know who's who? It's very difficult without a means of personnel identification.

MAIN POINT 7.
PERSONNEL
IDENTIFICATION
WHILE WEARING
GCE

You need to identify those wearing the GCE. As a minimum, print your name and rank on tape. Olive drab cloth or duct tape is preferred. Place tape with rank and last name on both the front and rear of the helmet and the protective hood. On the hood, the tape should be above the eye lenses in front and placed in the middle of the hood for the rear.

MAIN POINT 8.
DONNING AND
DOFFING THE GCE

Now, let's talk about donning and doffing the GCE.

A. DONNING

A. In order for the GCE to provide maximum protection, all closures should be as tight fitting as practical. Operational circumstances may dictate specific donning procedures so we will cover general procedure guidance:

(1) PANTS

(1) First, don the overgarment pants:

(2) FOOTWEAR

(A) FOUR AND FIVE
EYELET COVERS

- ⇒ Loosen the fasteners on the legs and fly.
- ⇒ Don the pants and secure the fasteners.
- ⇒ Adjust the side straps to provide a snug fit around your waist or use suspenders or a belt to hold up your pants.

(2) Next, don the footwear covers.

(A) If you are wearing the four- or five-eyelet footwear cover, the first thing you must do is thread the lace through the front eyelet so both ends are equal in length and secured with a knot.

- ⇒ Next, center your boot or shoe inside the footwear cover.
- ⇒ Pass the lace ends through the side eyelets from the inside to the outside.

- ⇒ Pull the lace ends upward, drawing the front and side eyelets up tight and secure the laces with a knot over the footwear cover on the top of the foot. A "surgeon's" knot, which simply wraps the lace twice through the knot, helps prevent the knot from opening while you finish lacing the footwear covers.
- ⇒ Pass the lace ends through the rear eyelet(s) from the inside to the outside, pull the laces upward, and smooth out the material.
- ⇒ Ensure the laces are tight. Wrap them up and around the leg and secure with a bow tie.
- ⇒ Wear the upper portion of the footwear cover underneath the overgarment pant leg.

(B) GVO/BVO

(B) If you are wearing the GVO/BVO, wear them over your standard footwear, fully fastened, with the upper portion of the GVO/BVO worn underneath the overgarment pant leg.

(3) OVERGARMENT
LEGS

(3) Secure the leg openings and tie ankle strings in a bow over footwear covers.

(4) GLOVES AND
INSERTS

(4) Don your cotton inserts and protective gloves.

(a) Don your glove inserts with the gauntlets under your uniform sleeves.

(b) Don your protective gloves with the gauntlet over your uniform sleeves.

(5) OVERGARMENT
JACKET

(5) Don your overgarment jacket.

(a) Don the jacket over your gloves, and secure the front zipper, snaps, and velcro.

(b) Secure your jacket rear snaps to the rear snaps on your pants.

(c) Tighten up your waist cord and tie in a bow.

(6) ACCESSORIES

(6) Don other necessary accessory items such as your mask carrier and field gear.

(7) M-9 PAPER

(7) Place M-9 on the GCE. Recommended locations are on the wrists, biceps, and between the knee and ankle.

(8) MASK

(8) Don your protective mask and hood.

INSTRUCTOR'S NOTE: Refer to Atch 1 for placement of M-9 paper. Be careful not to cover velco or zipper openings when doing so.

Use the applicable RTP for mask donning and doffing procedures.

B. DOFFING

B. The order for doffing the GCE in an uncontaminated environment does not matter. One method is to doff components in the opposite order they were donned. In a contaminated environment, the key is to doff the GCE in a manner which will not spread contamination inside the GCE. This is covered step by step in RTP G5.

CONCLUSION

SUMMARY:

During this lesson, we covered:

1. The purpose of the GCE
2. The components and description of each
3. Shelf-life and service-life as well as training and operational equipment
4. Inspection and documentation of the GCE
5. Wearing, donning, and doffing instructions
6. Identification
7. Donning and doffing procedures

REMOTIVATION:

Although the GCE is hot and awkward to wear, it will protect you in a chemical warfare environment.

CLOSURE:

This concludes this lesson on the GCE.

TRANSITION:

(Develop locally to transition to the next topic.)

PART III
EVALUATION
STUDENT PERFORMANCE STANDARDS

1. Inspect the GCE for serviceability.
2. Demonstrate how to don the GCE in an uncontaminated environment.

TEST ITEMS

1. LESSON OBJECTIVE: State the purpose of the GCE.

QUESTION: (True or False)

The GCE provides individual protection by preventing field concentrations of chemical warfare agents from physical contact with the wearer.

- a. True
- b. False

KEY: a

REFERENCE: Main Point 1

2. LESSON OBJECTIVE: Identify the protective capabilities of the GCE.

QUESTION: (Multiple Choice)

Which of the following statements is FALSE?

- a. The glove insert absorbs liquid chemical agent on the hand.
- b. The overgarment is made from permeable materials that allow air and perspiration to pass through.
- c. Protective gloves and footwear covers are made of butyl rubber and vinyl plastic which are impermeable to liquid and vapor agents.
- d. When chemical agents contact the overgarment, the outer nylon/cotton twill material layer absorbs the agent and prevents saturation of the charcoal absorption layer.

KEY: a

REFERENCE: Main Point 3

3. LESSON OBJECTIVE: Identify the components of the GCE.

QUESTION: (True or False)

A complete GCE consists of a protective mask and hood, a two-piece protective overgarment, protective footwear covers, glove inserts, and protective gloves.

- a. True
- b. False

KEY: a

REFERENCE: Main Point 3

4. LESSON OBJECTIVE: State the procedures used to identify personnel wearing the GCE.

QUESTION: (Multiple Choice)

All of the following are true, EXCEPT:

- a. Olive drab cloth tape is preferred when camouflage is required.
- b. Print name and rank on tape and place across the front and rear of helmet.
- c. Print name and rank on tape and place across the front and rear of the GCE.
- d. Print name and rank on tape and place above the eyelens in the front and in the middle of the hood in the rear.

KEY: c

REFERENCE: Main Point 7

PART IV
RELATED MATERIALS

RTP C9 - M17 Series Protective Mask and Accessories

RTP C10 - MCU-2/P Series Mask and Accessories

RTP C12 - Mission Oriented Protective Postures (MOPP)

RTP F17 - Wartime Chemical Contamination Control Area (CCA) (Groundcrew Ensemble
Donning and Doffing Procedures

TRAINING PACKAGE COMMENT REPORT

RTP # _____ RTP DATE _____

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