

# USER INSTRUCTION, SAFETY AND TRAINING GUIDE



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[www.LIONprotects.com](http://www.LIONprotects.com)

October 2022

## LION Flood Response Suit



### Protective Garment for Flood Response Incidents

For additional training, visit [www.lionfireacademy.com](http://www.lionfireacademy.com)

#### **DANGER**

**You MUST read this guide and all warning and danger labels before wearing.**

**NEVER** wear the Garment without the correct footwear and gloves; **NEVER** wear the Garment without all elements in place. The Garment alone does not provide protection against all chemical and biological hazards.

This Garment provides **NO** protection against flame.

This Garment provides limited protection against, abrasion, puncture, bodily fluids, other liquids and gasses.

The materials in this garment have been tested to the material requirements of the NFPA 1992 and NFPA 1994 standards. This Garment has **NOT** been tested to the whole garment or ensemble requirements of these standards. This Garment has not been tested for protection against any other chemicals or hazardous materials.

**WARNING: No products, including garments, footwear or handwear, can offer absolute protection, even when new, and their protective performance will decline with wear, tear, abrasion, and other damage associated with use. W.L. Gore & Associates, Inc. and LION make no guarantee of how the product will perform in actual use.**

You must have special training in order to safely use this Garment.

**This Garment MUST be replaced after 24 hours of wearlife or 10 years of shelf life. (See Warning box on Pg. 9.)**

## ! DANGER

You must read and understand these warnings and instructions. Failure to follow these warnings and instructions will result in serious injury or death.

6305

- Before wearing the garment, you must read and understand the User Instruction, Safety And Training Guide provided with this garment. The guide explains: 1. Critical safety information and protective clothing limitations. 2. Proper sizing/ adjustment. 3. Procedures for putting on and removing protective clothing. 4. How to clean, decontaminate, inspect and store this garment. 5. Use consistent with NFPA 1500. 6. Limitations on useful life and retirement procedures.
- You should wear this garment only if you have been **properly trained** and have knowledge of the proper selection, fit, use, care and limitations of protective clothing and equipment.
- This garment provides **NO PROTECTION** against heat and flame.
- Exertion in hot conditions **may result in heat exhaustion or poor judgement**. If you feel dizziness, dehydration, loss of focus, or shortness of breath, get to a safe area, remove this garment, and seek medical attention.
- Do not use this garment if it is damaged or dirty, garments will NOT provide the intended protection. ALWAYS follow manufacturer's cleaning instruction.
- This garment has a limited useful life and should be retired after 24 hrs of wear or 3 washes whichever occurs first. You **must** inspect regularly and retire when appropriate according to the User Instruction, Safety and Training Guide. **Download @ [www.LIONppe.com](http://www.LIONppe.com)**

MADE IN THE USA

DO NOT WRITE ON OR REMOVE THIS LABEL

### CLEANING AND STORAGE INSTRUCTIONS

- Users must clean, inspect, maintain, store and alter only in accordance with the User Instruction, Safety and Training Guide.
- Never use chlorine bleach. Chlorine bleach will significantly compromise the protection afforded by textile and barrier materials utilized in the construction of this garment.
- Clean non-Contaminated garments by machine washing, wiping down or using a low pressure hose. If machine washing, warm water using only liquid detergent and, if needed, liquid non-chlorine bleach. Double rinse in cool water. Never use softeners.
- Never dry clean.
- Dry by hanging in open area, out of direct or indirect sunlight and fluorescent light.
- Store out of direct or indirect sunlight and fluorescent light.
- The maximum shelf life of this garment is 10 years after the date of manufacture.
- You must inspect regularly and retire when appropriate.

REV. 3.0 10/2020

## 1. Danger and Cleaning Label

**LION**

100% NYLON-PTFE TRILAM  
5.5OSY GORE CHEMPAK XRT  
FRS

**ORD: 100481**

**MFG: 10/2022**

**SIZE/TALLA: XXL**

**JOB: 1928512**

**MODEL (0): CBERSHFS**



Serial Number: 0013547682

**TAG:**

## 2. Garment Information Label



Questions, contact:

LION  
7200 Poe Ave. Suite 400  
Dayton, OH 45414  
800-421-2926 / customersupport@lionprotects.com

A technical data package contains information on chemical agents and performance requirements for which the garment materials have been tested. There has been NO ensemble testing of this garment. Consult the technical data package and manufacturer's instructions before use.

The following additional components must be worn in conjunction with this protective garment:

Respiratory Protection (if applicable), Protective Footwear and Gloves

To reduce the risk of injury or death, you must assemble and wear together **ALL** of the above items with the proper fit/overlap.

Manufacturer is not responsible for any hood or glove attachment that are not part of the original suit and disclaims any warranty on the attachment of these components, which may present a risk of chemical exposure, injury or failure to maintain the proper garment seal. User assumes all risks of the ensemble's design.

Reference the User Instruction, Safety and Training Guide for proper donning and wearing instructions. Download User Guide at [www.lionppe.com](http://www.lionppe.com).

DO NOT REMOVE THIS LABEL!

F16917  
Rev. 1.0 3/2021

## 3. Product Information Label

Copies of labels used in non-certified Flood Response Suit

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## 1. INTRODUCTION

Congratulations on purchasing your new LION Flood Response Suit, specifically designed for response teams reacting to Special Operations involving Flood Water. This garment provides, limited protection for those involved in contaminated environment incidents. The fabrics and components are manufactured and tested under the performance requirements of NFPA 1994, Class 3 requirements and NFPA 1992. However, this Garment is not certified to these standards.

This User Instruction, Safety and Training Guide gives important instructions regarding the use, inspection, care, maintenance, storage and retirement of your Garment. Immediately upon receipt of your Garment, you should carefully read, print and save for future reference.

This Guide is a training tool to help you understand your Garment and how to use it in the safest possible manner during Special Operations involving Flood Water. Please take the time to read it.



## This Guide will train you to:

- Put on your Garment for safe usage
- Wear your Garment
- Decontaminate your Garment
- Inspect your Garment
- Repair your Garment
- Store your Garment
- Retire your Garment

## For your personal safety be alert for important safety messages in this Guide:

### **DANGER**

**DANGER** Indicates immediate hazards that will result in serious personal injury or death if not avoided, or if instructions, including recommended precautions, are not followed. The signal word “**DANGER**” is highlighted in red, both in this Guide and on labels affixed to your Garment, to indicate the extreme hazard of the situation.

### **WARNING**

**WARNING** Indicates potentially hazardous situations that could result in serious personal injury or death if not avoided, or if instructions, including recommended precautions, are not followed. The signal word “**WARNING**” is highlighted in orange on labels attached to your Garment, and in black in this Guide.

### **CAUTION**

**CAUTION** Indicates potentially hazardous situations or unsafe practices that could result in minor or moderate personal injury or product or property damage if instructions, including recommended precautions, are not followed. The signal word “**CAUTION**” is highlighted in gray in this Guide.

## 2. DEFINITIONS

**Accessory(ies)** – An item that is attached to an ensemble or ensemble element.

**APR** – Acronym for Air Purifying Respirator.

**ASTM** – Acronym for American Society of Testing and Materials.

**Aramid Fibers** – Special fibers with higher strength and resistance to heat and flame and abrasion used in protective clothing.

**AHJ-Authority Having Jurisdiction** – The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

**Body Substance Isolation** – A concept practiced by emergency response personnel – blood and ALL body fluids are to be considered to pose a risk for transmission of bloodborne diseases.

**Biological Agent** – Biological materials that are capable of causing disease or long-term damage to the human body.

**Biological Terrorism Agents** – Liquid or particulate agents that can consist of a biologically derived toxin or pathogen to inflict lethal or incapacitating casualties.

**Body Fluids-Borne Pathogen** – An infectious bacterium or virus carried in human, animal, or clinical body fluids, organs or tissue.

**CBRN** – An abbreviation for chemicals, biological agents and radiological particulates hazards.

**Component** – Any material, part or subassembly used in the construction of the Garment or element.

**Composite** – Any layering of ensemble material(s), ensemble element materials, or components as they appear in the final garment construction.



**Detergent** – In textile product care, a cleaning agent containing one or more surfactants as the active ingredient(s). Commercially available or household detergent products with a pH greater than 6.0 and less than 10.5 are suitable for routine washing of the Garment. See also Section 11 of this Guide.

**Ensemble** – See CBRN Terrorism Incident Protective Ensemble.

**Exposure Incident** – Specific contact of the following with blood or O.P.I.M.: 1) eye; 2) mouth or other mucous membranes; 3) non intact skin; or 4) parenteral contact.

**Facecloth** – Lining fabric that is used to cover inner surfaces.

**Flame Resistant** – A term used to describe a material that burns slowly or is self-extinguishing after removal of an external source of ignition.

**Flame Resistance** – A property of a material whereby combustion is prevented, terminated, or inhibited following the application of a flaming or non flaming source of ignition, with or without subsequent removal of the ignition source; flame resistance can be an inherent property of the material, or it can be imparted by specific treatment.

**Flash Fire** – A fire that rapidly spreads through a diffuse fuel, such as dust, gas or the vapors of an ignitable liquid, without the production of damaging pressure.

**Garment** – The coverall element of the protective ensemble designed to provide minimum protection to the upper and lower torso, arms, and legs, excluding the head, hands, and feet.

**Guide** – A shortened version referring to this *User Instruction, Safety and Training Guide*.

**Hazardous Materials** – A substance (solid, liquid, or gas) that when released is capable of creating harm to people, the environment, and property.

**Hazardous Materials Emergencies** – Incidents involving the release or potential release of hazardous materials.

**IDLH** – Immediately Dangerous to Life or Health; any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.

**Inner Glove** – A glove worn inside another glove for the purposes of providing additional protection to the wearer.

**Interface Area** – An area of the body not protected by protective equipment; the area where the protective garments and other equipment (helmets, gloves, boots, respiratory protection) meet.

**Ionizing Radiation** – Extremely short wavelength, high energy penetrating rays of gamma and x-rays emitted from radioactive elements and isotopes.

**Liquid-Borne Pathogen** – An infectious bacteria or virus carried in human, animal, or clinical body fluids, organs, or tissues.

**NIOSH** – Acronym for the National Institute for Occupational Safety and Health; a government-based training and research organization that tests and certifies respirators for workplace use.

**Non-Encapsulating** – A type of CBRN protective ensemble that provides liquid splash protection but does not provide vapor tight or liquid tight protection and does not cover the wearer's respirator.

**O.P.I.M.** – Other potentially infectious materials. Includes semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid, and peritoneal fluid.

**OSHA** – Occupational Safety and Health Administration; a US government-based standard-making body which develops public health and safety standards.

**Outer Boot** – A boot worn over other footwear components to meet requirements of 1994, Class 3 and NFPA 1992.

**Outer Element** – A garment worn over another garment element to meet the requirements of NFPA 1994, Class 3 and NFPA 1992.

**Outer Glove** – A glove worn over another glove for the purposes of providing additional protection to the wearer and meeting the requirements of NFPA 1994, Class 3 and NFPA 1992.

**Outer Shell** – The outermost layer of the composite with the exception of hardware, reinforcing material and wristlet.

**PAPR** – Acronym for Air Purifying Respirator.

**Parenteral** – Piercing through the skin barrier-needlestick injury, human bite or a cut or scrape.

**Recovery Operation** – An operation involving the retrieval of either (1) the remains of a deceased victim or (2) property, but in no case a living person.

**Reinforcement** – The addition of extra material for enhanced protection in areas prone to compression or abrasive wear such as knees, elbows and shoulders.

**Rescue Operations** – Those activities directed at locating endangered persons, removing endangered persons from danger, treating the injured at an emergency incident, and providing transport to an appropriate health care facility.

**Respirator** – A device that provides respiratory protection for the wearer.

**SCBA** – Self-Contained Breathing Apparatus; a respirator worn by the user that supplies a respirable atmosphere that is either carried in or generated by the apparatus and is independent of the ambient environment.

**SDS** – Acronym for Safety Data Sheets.

**Seam Tape** – The seam tape is a chemical/biological protective laminate, consisting of a outer fabric backer, a continuous fluoropolymer barrier film, and a heat sealable proprietary adhesive.

**Sewn Seam** – A series of stitches joining two or more separate plies of material(s) of planar structure, such as textile fabrics.

**Soap** – A cleaning agent usually consisting of sodium or potassium salts of fatty acids. Do not use soap to clean protective ensembles. See also Detergent and Section 11 of this Guide.

**Sock** – A sock-like extension of the Garment leg worn in conjunction with other footwear components.

**TICS** – Acronym for Toxic Industrial Chemicals.

**TIMS** – Acronym for Toxic Industrial Materials.

**Toxic Industrial Chemicals** – Highly toxic solid, liquid or gaseous chemicals that have been identified as mass casualty threats that could be used as weapons of terrorism to inflict casualties, generally on civilian population, during a terrorist attack.



**TPP** – Thermal Protective Performance. A test to determine the ability of an Ensemble Composite to withstand a measured amount of thermal and radiant heat.

**Trilaminate** – Three-layer chemical/biological protective fabric, consisting of an outer shell fabric, a barrier layer and an inner liner fabric laminated together to form a single ply.

**Useful Life** – The period of time that protective clothing, which has been properly cared for, could be expected to provide reasonable limited protection.

**UV (Light or Radiation)** – Acronym for Ultraviolet Light, a type of light commonly found in the sun's rays.

**Universal Precautions** – A concept under which blood and CERTAIN body fluids pose a risk for transmission of bloodborne diseases.



### 3. SAFETY CHECKLIST

**Do not use this Garment until you have checked “YES” to the following activities:**

1. Have you completed a formal training course in Water Rescue and the use of the appropriate protective garments?  
☐ Yes   ☐ No
2. Have you read and understood all the instructions and warnings in this guide as well as all the labels on your Garment?  
☐ Yes   ☐ No
3. Will you regularly inspect this Garment inside and out for any tears, holes, thin spots, worn areas, color damage, dirt, contaminants, or embrittlement, or any other conditions discussed in Section 6 of this Guide?  
☐ Yes   ☐ No
4. Have you studied the limitations of this Garment as described throughout this Guide and will you take precautions to prevent injury?  
☐ Yes   ☐ No
5. Have you checked to make sure that your Garment fits you properly in accordance with Section 8 of this Guide?  
☐ Yes   ☐ No
6. Have you, your safety officer, or another appropriate person made plans to ensure that this Garment is cared, used, inspected, maintained, stored and retired according to instructions in this Guide?  
☐ Yes   ☐ No
7. Are you aware that the protective properties in new garments and other PPE can diminish as the product is worn and ages?  
☐ Yes   ☐ No

If you have answered NO to any of the questions, DO NOT WEAR THIS Garment until you have read the appropriate sections in this Guide and have been properly trained by qualified instructors.



## 4. PURPOSE AND LIMITATIONS OF YOUR GARMENT



Do not use  
for ANY  
firefighting.



Do not use  
for direct  
contact with  
flames or  
molten metal.



Do not use  
for protection  
against  
hazardous  
radiological  
agents.

This Garment is designed to provide LIMITED protection to the torso, legs, feet and arms against hazards to Emergency Responders involved in Biological Incidents and Special Operations involving Flood Water, including:

- Limited protection against Hazardous Materials
- Limited chemical splash protection
- Limited protection against penetration by blood and body fluids
- Limited protection against physical puncture and abrasion
- Limited protection against exposure to adverse weather

SEE SEPARATE TECHNICAL DATA PACKAGE FOR LISTING OF CHEMICALS FROM WHICH THIS GARMENT PROVIDES PROTECTION.

### **DANGER**

#### **THIS GARMENT WILL NOT PROTECT YOU AGAINST THE FOLLOWING HAZARDOUS SITUATIONS:**

- ALL swift water or underwater operations
- ALL firefighting operations
- ALL direct contact with flames or molten metal
- ALL electrical hazards
- ALL radiological agents
- ALL liquefied gas and cryogenic liquid hazards
- ALL explosive atmospheres

### **WARNING**

Protective properties will diminish as the product is worn and ages. To reduce the risk of injuries, you **MUST** follow the recommendations in this Guide for inspection and retirement of your Garment to ensure that the Garment is not used past its Useful Life.





## 5. GARMENT CONSTRUCTION, FEATURES AND FUNCTION

In order to know the function and limitations of your Garment, you should study its construction, features and function.

### 5.1 OVERVIEW

Your Garment helps protect you during Special Operations involving Flood Water.

### 5.2 TRILAMINATE CONSTRUCTION

Your Garment is made of a trilaminate: a three-layer chemical/biological protective fabric, consisting of a selectively permeable barrier film laminated between outer and inner textiles.


The inner and outer textiles provide strength and durability to the chemical protective layer.


#### **DANGER**

**THIS GARMENT IS MANUFACTURED FROM MATERIALS THAT WILL MELT AND/OR BURN.**

**DO NOT USE THIS GARMENT FOR ANY ACTIVITIES WHERE THERE IS ANY RISK OF DIRECT CONTACT WITH FLAMES, HIGH HEAT, OR MOLTEN METAL!**

### 5.3 OTHER IMPORTANT SAFETY FEATURES (FIG. 2A, 2B)

Closure Systems:  Located on the front of the garment. **The zipper and stormflap must be properly closed and fastened to offer full protection.**

Socks:  Socks provide chemical and biological protection while your "outer boots" provide physical protection. Socks are attached and designed to be worn on the inside of your boot. Socks should never be worn as outer boots.

#### **WARNING**

Your Garment has 24 hours of wear durability when operations are comparable to those outlined in Gore report *Wear Trial Performance Results of NFPA 1994, Class 3 and NFPA 1992 Compliant GORE® CHEMPAK® Selectively Permeable Fabric as Used in the Extended Response Team (XRT) Suit*. A copy of the report may be obtained from W.L. Gore & Associates upon request.

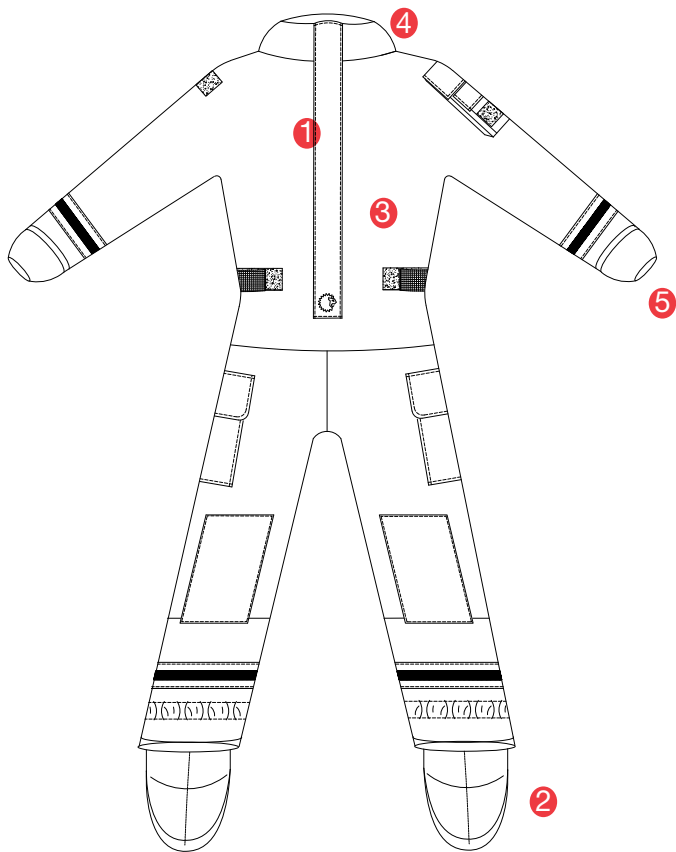


Labels: ③ There are important safety and information labels, all located on the back panel of the Garment. The Danger and Cleaning Label provides critical safety information and directs you to read and understand this Guide. The label also explains the product information and wash instructions. Samples of the labels are located on page 2 of this Guide.

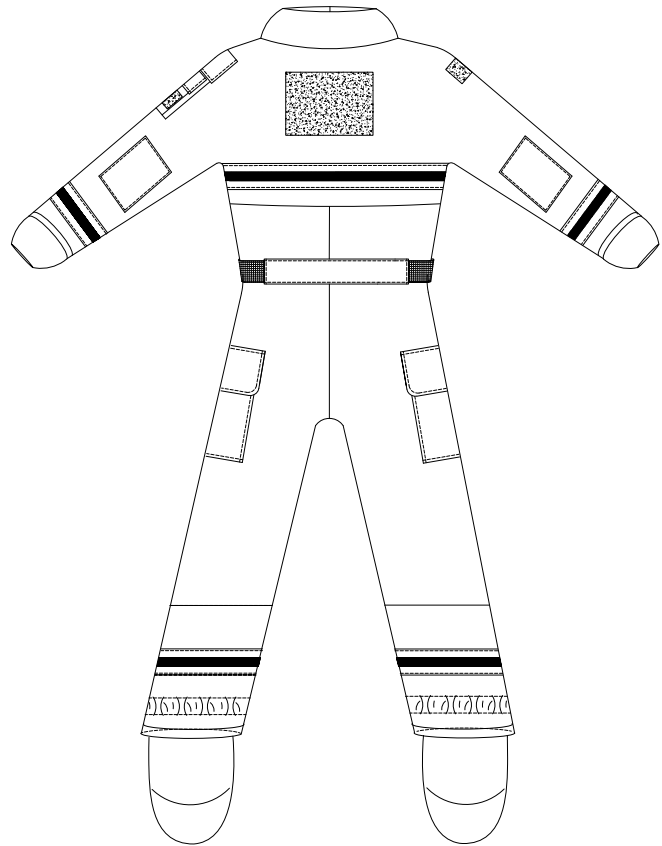
Garment Collar: ④ The collar provides a close fit around the neck. The zipper closure terminates at the collar.

Cuff: ⑤ The garment cuff provides a close fit around wrist. You must wear your AHJ issued gloves for proper protection.)

**FIG. 2A, 2B**  
**Garment**



FRONT VIEW



BACK VIEW



## 6. Inspection

### 6.1 PREPARATION

Read all labels first. There are important information Labels (see Section 5.3 for location). If the safety labels are missing, return the Garment to the manufacturer immediately.

### 6.2 FREQUENCY

This Flood garment must be replaced after 24 hours of wear (see Warning Box on Pg. 9).

#### Inspection:

You should inspect your Garment if worn for less than 24 hours and is in condition for further use (see Warning Box on Pg. 9). Inspect after each use and at least annually and at the following times to detect more obvious damage and deterioration:

1. Upon receipt of your new Garment or replacement component;
2. After each wearing and cleaning during the useful life of the Garment;
3. After exposure to chemicals or bodily fluids (including blood); and
4. After cleaning, repair or decontamination and prior to storage.

Whenever you detect a potential problem through your own inspection, or suspect that the protective qualities might be degraded, your entire Garment should be inspected by a trained expert in your Authority Having Jurisdiction, at a LION TotalCare® Center or other authorized clean and repair center that has been trained on inspecting CBRN Protective Garments.

### 6.3 INSPECTION PROCESS AND CRITERIA

#### 1. Preparation for Inspection

Place the Garment on a clean surface in a brightly-lit area. Lay the Garment flat to remove the wrinkles. Check the suit entirely inside and out.

#### 2. Inspecting the outer surface:

- A. Fabric: Examine the Garment and sock materials for dirt, discoloration, thin spots, holes, cuts, punctures, tears, embrittlement, cracking, abrasions and worn spots.
  - a. Any of the above could indicate leakage.
  - b. Discoloration may be a sign of overexposure to light or heat or improper care. If an area appears to be weak, you should have a trained expert or LION TotalCare® Center inspect it.
  - c. Embrittlement or cracking are signs that the Garment must be inspected thoroughly by a trained expert or a LION TotalCare® Center.

#### **WARNING**

Most performance properties of the Garment and its components cannot be tested by the user in the field.

This section describes Routine Inspection of the GARMENT ONLY. Instructions for inspection of other PPE, like gloves or boots, used with this Garment may vary and should be consulted.



- B. Closure Systems: Examine for functionality and damage.
- a. Hook and Loop – Examine and disengage hook and loop attachments to make sure they function well. Examine for worn or abraded pieces that require replacement. Check stitching for any signs of curling that would indicate a repair is required.
  - b. Zippers – Examine all zippers for functionality that would require replacement. Ensure that all zippers completely close. Check for cuts or tears in the rubber zipper tape material that could be a possible leakage point. Check seams for loose tape that would indicate a repair is required.
- C. Accessories: Check all accessory items to ensure that they meet manufacturer's specifications and approval.
- D. Stitching and Seams: Examine all seams for loose threads, breaks, skipped stitches or weaknesses.
3. Inspecting inner surfaces. Turn Garment and socks inside out and place on a clean surface in a brightly-lit area. Lay flat to remove wrinkles.
- A. Fabric: Examine the Garment and sock materials for dirt, discoloration, thin spots, holes, cuts, punctures, tears, embrittlement, cracking, abrasions and worn spots.
- a. Any of the above could indicate leakage.
  - b. Discoloration may be a sign of overexposure to light or heat or improper care. If an area appears to be weak, you should have a trained expert or LION TotalCare® Center inspect it.
  - c. Embrittlement and cracking are signs that the Garment must be inspected thoroughly by a trained expert or a LION TotalCare® Center.
- Examine for unusually thin spots where the inner surface has been damaged by sliding your hands across fabric and feeling for holes or places where your hand does not slide freely. If you see or feel thin areas, rough spots, ridges, cracks or holes this could indicate breakdown.



- B. Stitching and Seams: Examine all seams for loose or damaged tape, loose threads, breaks, skipped stitches or weaknesses. There should be no lifting of seam sealing material. Check seam integrity by gently pulling on the seams.
  - C. Labels
    - a. Presence: Verify that all Safety and Information labels are on the Garment. See Pg. 2 and Section 5.3.
    - b. Legibility: Make sure that all Safety and Information Labels are legible and securely attached to the Garment.
  - D. Useful Life: This Garment has a limited useful life of 24 wear hours maximum (see Warning Box on Pg. 9). You must inspect it regularly and retire it when appropriate according to Section 14 of this Guide.
4. Specialized equipment used by LION and LION TotalCare® can detect leaks that may be undetectable by the end user. Remove from service any Garment that shows signs of degradation anywhere and contact LION or LION TotalCare® for a complete inspection.

**⚠ WARNING**

Inspect your Garment at the end of each operation. Chemicals, blood and other hazards may be difficult to see on dark fabrics. Wear gloves during inspection.

**⚠ WARNING**

If chemicals, blood or other potentially harmful materials penetrate a Garment while you are wearing it, remove the Garment immediately, or as soon as it is feasible.

## 6.4 RECORD KEEPING

LION TotalCare® Centers offer record keeping services. For manual records, record all inspections and your results on the *Inspection, Cleaning, Repair, Retirement, and Disposal Record* located in the back of this guide. Maintain this form unless your organization has provided you with a comparable record keeping method for this purpose.



## 7. DONNING AND DOFFING

### PREPARATION: Before donning:

- A. Verify that the Garment has been inspected and is free from damage.
- B. Ensure the Garment is appropriate for the hazard to be encountered.
- C. Have other trained personnel available to help you don the Garment.
- D. Wear underclothing beneath the Garment: at least a short sleeve shirt and pants, or long underwear.
- E. Remove footwear and all personal affects that might damage the Garment (e.g., pens, badges, jewelry, wrist watches, etc).

### **DANGER**

NEVER wear the Garment without all elements in place. The Garment alone does not provide protection against chemical and biological hazards. NEVER wear the Garment without the correct respirator (if applicable), footwear and gloves.

### 7.1 DONNING

1. With the zipper unfastened, hold open the Garment.
2. Remove footwear and any sharp objects you may have in a pocket that could damage the suit from the inside.
3. Step into the Garment, and ensure your feet are all the way into the socks. Pull Garment to the waist.
4. Bring the sleeves around your torso and secure them around your waist so they don't drag on the ground.
5. Step into your protective footwear.
6. Slide outer shell of Garment leg over each boot.
7. Slide upper half of Garment over shoulders and insert arms into the sleeves and your hands through the cuff ends.
8. With the help of a trained partner, carefully zip the front all the way to the neck until fully closed (use caution not to catch barrier material in zipper).
9. Proceed by covering the zipper with the extended Collar with the use of hook and loop (use caution to not catch the inner storm flap in zipper).
10. Don the applicable gloves as provided by the AHJ.
11. When properly fitted and correctly donned, the garment leg cuffs should be no less than 2" and not more than 5" off the floor.
12. Where applicable, don any hoods and respiratory protection according to their instructions.



Trained personnel should assist you with this step and should inspect the integrity of each interface area when donned to ensure a good seal:

- Glove-to-sleeve
- Socks-to-pants leg
- Respiratory protection/hood to garment (if applicable)

## 7.2 FINAL INSPECTION BEFORE ENTERING HAZARD AREA

Last and most important, to ensure proper donning before entering a hazard area, you must have a partner inspect your interface areas for proper overlap and to ensure all closures are secured properly.

## 7.3 DOFFING (REMOVING) YOUR PPE

Always wear your full PPE during all phases of the operation. After the emergency operation is completed, you have been through decontamination, and you are in a safe area, it is important to ventilate your body as quickly as possible in order to cool down. However, remove your PPE ONLY when you are certain that you are safely out of the hazard area. Doffing the PPE should be performed with trained personnel.

### Doffing an Uncontaminated Garment

- A. When you are ready to remove your garment, seek the assistance of the decon team or trained partner. First loosen take-up straps, then remove your respiratory protection/hood (if applicable).
- B. If applicable, remove your protective gloves, taking care to not invert them as they are removed.
- C. Unfasten the hook and loop closure at the collar and unzip the suit closure. Slide the garment off the shoulders, inverting as you doff, doffing to below the waist. Sit to remove your footwear so you can step out of the garment.
- D. During and after doffing, always look for signs of chemicals, body fluids, or other contamination, and for signs of wear or damage. Your garment can be worn up to 24 hours (see Warning Box on Pg. 9). See Cleaning, Decontamination, and Disinfecting Procedures in Section 11 of this Guide.

### **WARNING**

Be sure that all interface areas have been inspected for proper installation. Failure to properly assemble the interfaces, will reduce the protection of the Garment.

### **Why invert the Garment?**

Inverting the Garment during removal helps prevent any contaminated parts of the Garment from making contact with your skin.

Even if no contaminants were present during a particular incident, your learning this doffing method will help ensure the safest possible Garment removal in the future, should any hazardous conditions exist.



### **Doffing a Contaminated Garment**

If the Garment has been exposed to hazardous chemicals, follow your organization's standard operating procedure for decontamination of personal protective equipment on the scene before you remove your Garment.

- A. Remove your Garment according to steps A-D on page 16, carefully avoiding contact with contaminated parts.
- B. If indicated in your organization's standard operating procedure for the safe handling of contaminated equipment after certain types of exposures, hose the Garment down at the scene with a low-pressure setting.
- C. Place the Garment in plastic bags to allow safe handling by laundry personnel. A Garment exposed to body fluids can be cleaned and disinfected to reduce the risk of exposure to bloodborne pathogens. See Washing, Decontamination, and Disinfecting Procedures in Section 11 of this Guide.
- D. If applicable, have the Garment fully decontaminated, washed, and visually inspected. If decontamination procedures are not applicable, the Garment should be disposed of in a safe manner. See Washing, Decontamination, and Disinfecting Procedures in Section 11 of this Guide.

## **8. COMPATIBILITY AND PROPER FIT**

### **8.1 PROPER FIT OF GARMENT**

Your Garment must have adequate looseness in the torso, arms and legs. If the Garment bunches at the shoulders or binds in the shoulders, arms, thighs or crotch area, it is probably too small. Also, the garment should not be too loose, as this could hinder mobility or dexterity and place stress at the wrong places in the Garment. Upon receiving a new or replacement Garment, make sure there are at least a few inches of loose material around the arms, shoulder area and crotch. Then test the mobility by climbing stairs and crawling or duck walking.

### **8.2 PROPER SIZE**

If any element of your Protective Clothing does not seem to fit properly, you should check the size in the label to make sure it is your correct size as measured, and to make sure it is your assigned Garment.

#### **⚠ DANGER**

Never wear a Garment that fits improperly. If you have a question, or there is a problem with the fit of the Garment, contact your safety officer for assistance. Wearing a Garment that does not fit properly could reduce protection and result in injuries or dangerously restrict your ability to avoid injuries in an emergency situation.





## 9. MARKING CONSIDERATIONS

If you need to create identifying marks on the garment, consider the following:

- 9.1 First, check the Danger/Cleaning Label (it has a barcode on it) to determine whether adequate identifying information was already printed by the manufacturer. Samples of each label are located on page 2 of this Guide.
- 9.2 Do not apply letters, emblems, trim, and/or other types of identification that may penetrate the Garment. Do not write on the inside or outside of the Garment. Indelible inks could damage the film or coating.
- 9.3 If there is space available on the labels, you may use an indelible laundry marker on those spaces, taking care not to write over existing text.

### **DANGER**

Always wear clean and thoroughly dry Garments used in any incident. Soiled or contaminated Garments may not provide proper protection, causing serious injury the wearer.

## 10. USING YOUR GARMENT SAFELY: HOW TO MINIMIZE THE RISK OF INJURY

Always use your Garment properly and in a manner consistent with the following:

- The Authority Having Jurisdiction's standard operating procedures;
- NFPA 1500, *Standard on Fire Department Occupational Safety, Health and Wellness Program*;
- NFPA 1581, *Standard on Fire Department Infection Control Program*;
- Title 29, Code of Federal Regulations (CFR), Part 1910.132 "General Requirements of Sub part I, Personal Protective Equipment"; and
- Title 29, CFR 1910.1030, "Protecting Healthcare Workers from Occupational Exposure to Bloodborne Pathogens".

### **CAUTION**

Only mark in the designated areas on the safety or cleaning and information labels on your garment!

Users outside the U.S. should consult national or other applicable personal protective equipment regulations.

### 10.1 PREPARATION

Before beginning any emergency operation, your Garment should be donned according to the procedure in Section 7 of this guide, and checked by another person for proper interface.

### 10.2 HEAT STRESS: A SIGNIFICANT CAUSE OF INJURIES

Physical work in a warm or hot environment causes a rise in the temperature inside the body. To protect the body against heat, the heart begins to beat faster so more blood can be moved to the skin surface. Blood vessels near the skin dilate so they can carry more blood. In this way, blood in the interior of the body can be brought out near the body's surface and cooled. Most importantly, the body produces sweat which evaporates off the skin to provide cooling. These natural responses do not work very well for any or all of the following conditions: the ambient air temperature 75 degrees or higher, the Garment's insulation blocks the transfer of heat away from the body, the Garment blocks the evaporation of sweat, or the exertion of the muscles produces more heat than the system can remove. When body temperature elevates too high, the results can be heat stress, heat exhaustion, or heat stroke.



### **WARNING**

You must be physically fit to safely perform strenuous work under stressful conditions. Regular cardiovascular exercise, abstaining from cigarette smoking, proper training, a healthy diet, and avoidance of obesity, can help to reduce the risk of a heart attack.

### **WARNING**

Overexertion in hot conditions while wearing the Garment can lead to heat exhaustion, or heat stroke. Symptoms of **heat exhaustion** are a general feeling of weakness, dizziness, rapid pulse, low blood pressure while standing or sitting, and/or a headache. The skin may feel moist or clammy. If you feel symptoms, get to a cool place, remove your PPE, and drink fluids. Failure to seek attention could lead to coma or death.

### **WARNING**

Symptoms of **heat stroke** are hot, dry skin with no sweating, very high body temperatures, weakness, dizziness, rapid breathing, nausea, unconsciousness, and mental confusion. If you feel any of the above symptoms at any time, get to a cool area immediately, remove your PPE, drink fluids and seek medical attention. Failure to seek attention could lead to coma or death. Immediate cooling is essential for survival in heat stroke cases.

#### **10.3 HEART ATTACKS: A RESULT OF OVEREXERTION**

Certain activities that may be undertaken during emergency response operations will cause the heart to beat faster because of the need to move more blood to the working muscles. This blood carries more oxygen to the muscles so they can handle the increased workload.

Another factor in increasing the rate of the heart is the presence of adrenaline, the fight or flight hormone, in the body during an emergency. The adrenaline present in your system causes the heart to pump even faster than during normal activity.

All of these factors could place too much stress on the heart, leading to a heart attack. The heart simply cannot handle the load placed on it.

#### **10.4 BLOODBORNE PATHOGENS**

Your Garment is designed to protect your body from the hazards of exposure to bloodborne pathogens present in human body fluids. Exposure incidents are specific contact of the following with blood or O.P.I.M. (Other Potentially Infectious Materials): eye; mouth or other mucous membranes; non-intact skin; or parenteral contact. Make sure face and mouth, eyes and nose, and non-intact skin are covered. Avoid contact with sharps. Use Body Substance Isolation Procedures when handling your garment if contaminated with body fluids. Cleaning your Garment will reduce hazards arising from its exposure to potentially hazardous body fluids.



## 10.5 CHEMICALS

Your Garment is designed to protect your body from:

- The hazards of exposure from specialized operations involving Flood Water;
- Liquid chemical splash. This protection is accomplished by means of the chemical protective layer.

Your Garment's barrier and seams are tested for resistance to permeation of Distilled Mustard (HD), Soman (GD), Acrylonitrile, Dimethyl Sulfate, Ammonia, and Chlorine as specified in accordance with NFPA 1994, Class 3 and NFPA 1992. This layer is also tested for resistance to penetration by ten chemicals as specified in accordance with NFPA 1992. Contact LION for a copy of our Technical Data Package to see the list of chemicals from which this Garment will provide protection.

You could be exposed to an almost unlimited number of potentially hazardous chemicals or agents under a variety of concentrations, temperatures, lengths of exposure or other variables. **As of this writing, there is no single protective material that will protect against every hazard in every possible situation.** It is the responsibility of the Organization, the Authority Having Jurisdiction, and you the User to understand the limitations of this Garment and other risks and issues related to contamination by unknown/untested chemicals.

### TYPES OF CHEMICAL TRANSFER

There are at least two ways in which hazardous chemicals and/or vapors can transfer from the Garment's (or other element's) exterior to its interior: Permeation and Penetration.

**Penetration:** This type of transfer happens when a chemical passes from one side of the element's surface to the other through a pinhole, tear, ruptured seam, unsecured closure or interface, or by some other physical means.

**Permeation:** This type of transfer happens when a vapor passes from one side of the element's surface to the other through the surface's microporous gaps (if any), or as a result of the surface's chemical reaction to a substance that allows it to pass through the material as a liquid, gas, or vapor. This could even occur when there are no visible signs of *penetration*.

Many chemicals are harmful in liquid form and/or in vapor form.



## **WARNING**

This Garment **does not** provide flame resistance or thermal insulation. Serious burn injury or death may occur if you wear this Protective Clothing for ANY firefighting activity. See sections 4 and 5 of this guide for proper use of the Garment.

### 10.6 BURN HAZARDS: TYPES OF HEAT TRANSFER

There are three types of heat transfer in a fire that could cause burns: conduction, convection, and radiation. Conduction is the direct transfer of heat through contact with a hot object. Convection is the transfer of heat through a medium; for example, air. Thermal radiation is the transfer of heat in the form of light energy, directly from flames or reflected from hot surfaces.

#### FLASH FIRE

Flash fire means fire that rapidly spreads through a diffuse fuel, such as dust, gas, or the vapors of an ignitable liquid, without the production of damaging pressure. Flash fires mainly produce hazardous radiant heat, as well as convective heat.

The fabric provides no protection against heat and flames. Radiant and convective heat may be severe enough that you may be burned while wearing this Garment.

## **DANGER**

Flash Fires are extremely dangerous incidents. The radiant and convective heat produced by a flash fire may be severe enough that you may be burned while wearing this Garment. If you sense combustible gasses or debris in the area, you should escape to a safe area until the dangerous condition has been eliminated.

## **DANGER**

Emergency responders who are exposed to a flashover, backdraft, or other flame and high heat environments are at **EXTREME** risk for extensive burn injuries and death while wearing this Garment!

### 10.7 ADDITIONAL FACTORS AFFECTING SAFETY

The following additional factors may affect the limited protection provided by the Garment:

- Conditions at the incident beyond the scope of the limited purposes of this Garment;
- Unauthorized modifications, repairs or replacement of components of the Garment not otherwise in compliance with LION's specifications;
- The addition of accessories that are not approved by LION as compatible with this Garment. If you have questions about whether accessories will degrade the performance of your Garment contact LION or a LION TotalCare® Center.



## 11. WASHING, DECONTAMINATION AND DISINFECTION

### 11.1 HAZARDS OF DIRTY GARMENTS: WHY WASHING AND DECONTAMINATING IS IMPORTANT

You can be exposed to many hazardous substances while involved in Special Operations involving Flood Water. These substances can contaminate your Garment, and cause harm to you after your body contacts your Garment. This section tells you how to wash and decontaminate your Garment to avoid these hazards.

**Hazardous Chemicals:** Your Garment's barrier and seams are tested against the following chemical challenges. The Garment barrier is tested for resistance to permeation of **Distilled Mustard (HD), Soman (GD), Acrylonitrile, Dimethyl Sulfate, Ammonia, and Chlorine**. This layer is also tested for resistance to penetration by ten chemicals. See the technical data package for permeation resistance and penetration resistance data. Over time, as the Garment is worn, the barrier's protection against penetration of these chemicals will become more limited. See Section 14 on useful life.

In addition, Chemical/Biological Terrorism Incident responders face potential exposure to an almost unlimited number of other potentially hazardous chemicals in their operations. Garment is NOT designed to protect against all hazardous chemicals. You MUST use appropriate chemical protective clothing in these situations.

**Bloodborne Pathogens:** You are also at risk of exposing your Garment to body fluids that may contain bloodborne pathogens. Following proper washing procedures described later in this section will adequately disinfect the material.

### 11.2 FIELD DECONTAMINATION

If you experience (or suspect that you have experienced) accidental or incidental exposure to a hazardous chemical or bloodborne pathogen, you need to follow the decontamination precautions set forth by your AHJ to limit exposure to yourself and others.

Before doffing, you should decontaminate your Garment at the scene to limit further exposure to hazardous chemicals, to prevent exposure to others, and to prevent chemicals from settling into your Garment. A number of portable decontamination showers are available for this use. If you do not have a field decontamination shower, you should at least hose down your contaminated Garment before doffing to help you avoid harm from contaminants on the Garment's surface.

### 11.3 FREQUENCY

If you have worn your Garment for less than 24 hours and is in condition for further use, you should thoroughly clean and decontaminate your Garment as soon as possible after each wearing. Fully inspect your Garment (see Section 6) before reusing it. Your Garment must be replaced after 24 hours of use. See Warning Box on Page 9. If your gear has been worn for less than 24 hours and is in condition for further use, and will be stored for future use, you should clean off non-contaminates (simple soil and sweat) prior to storage.

This section describes Routine Washing of the GARMENT ONLY. Instructions for cleaning other PPE used with this Garment may vary.

#### **WARNING**

Always clean your Garment separately from other items. Never clean your garment at home, or at public laundry facilities to avoid the spread of chemical contamination or hazardous products to other laundry.





never  
dry-clean

### **⚠ WARNING**

Never Dry-Clean your Garment. There are many components in the Garment that will not function if dry-cleaned.

### **⚠ WARNING**

Never use high velocity power washers or pressure hoses for washing your Garment. These tools can severely damage the raw materials and seams.

## **11.4 CLEANING PRODUCTS**

This section describes Routine Care of the GARMENT ONLY.

Other PPE used with this garment may have instructions that vary from this Garment.

- A. Commercially available cleaners. Use commercially available household cleaning products with a pH greater than 6.0 and less than 10.5. Many household detergents fall within this range.
- B. Specialty Cleaners. Some manufacturers of cleaning solutions have developed products that can be used for Protective Clothing. Always read SDS sheets before using these products. Contact LION at 1-800-421-2926 or the LION TotalCare® Centers listed in this Guide before using specialty cleaners.
- C. Spot cleaners and Pre-Treatments should be non-solvent type. Do not use Chlorine bleach, fabric softeners, solvents or solutions with a pH less than 6 or greater than 10.5.

### **⚠ WARNING**

Never use chlorine bleach or chlorinated detergents to clean your Garment. Even small amounts of chlorine will seriously reduce your Garment's protective qualities.

Never use detergents with citrus or d-limonene-based additives to clean your Garment as these may attack its rubber components.



no chlorine  
bleach

## **11.5 CLEANING**

It is acceptable for non-contaminate exposure (simple soil and sweat) to provide a simple wash of mild solution of household detergent (see section 11.4 for acceptable products), wiping the garment down or spraying the garment with a low pressure hose. Wash and rinse the outside of the Garment first, then the inside, then dry according to section 11.6.

- A. Use a cleaning agent that is safe for use on protective clothing fabrics. Garment should only be washed by hand or wiped/sprayed down.
- B. Gently wipe the fabric with a soft cloth.
- C. Wash and rinse the outside of the garment first, then the inside.
- D. Thoroughly dry Garment following instructions in section 11.6.



## 11.6 MACHINE WASHING

**Preparation:** Before washing, make sure you comply with all federal, state and local guidelines for handling effluents from utility sinks.

- Spot-clean heavily soiled Garments following steps in the Spot cleaning procedures, in Sections 11.5-11.6 of this Guide.
- Fasten all hook and loop closures to each other to reduce the likelihood of damage to delicate parts of your Garment.

### Machine Settings

Use a front loading extractor or front loading washing machine with a tumbling action for washing. Do not use a top-loading machine, because it will not wash your Garment as thoroughly, and the agitator will damage it and reduce its durability and protective value.

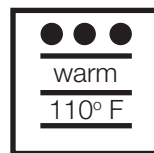
The following machine settings should be used:

### WARNING

Cold, hot, or extended duration wash cycles will prematurely degrade the chemical permeation protection of the fabric.

### Wash Procedures

- Load machine with Garment to be washed. Follow machine manufacturer's instructions for proper load size. **Do not load the washer over 75% capacity.**
- Add cleaning product per manufacturer's instructions. Never use Chlorine bleach; non-chlorine bleach may be used. Ensure accurate measuring tools are used for correct cleaning product dosage. See Section 11.4 of this Section for cleaning products. Note: See Glove user guide for Glove cleaning instructions and Boot user guide for Boot cleaning instructions.
- Set washing machine on normal cycle and start the wash cycle.



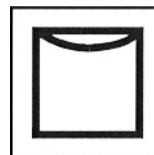
water temperature



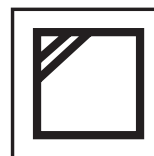
Front-loading machine only. No mechanical agitation. Normal wash cycle.



no chlorine bleach for Garment



line dry/  
hang to dry



in the shade



never tumble dry



never dry-clean



### 11.7 DRYING

- A. After wiping/spraying down, check Garment for any areas where water may have collected or pooled. Drain these areas before hanging to dry.
- B. Dry by hanging in a shaded area that receives good cross ventilation or use a fan to circulate the air.
- C. To make the inside of your Garment dry faster, turn it inside out. . Moisture inside the Garment reduces comfort and overall protection while you are wearing your protective clothing. Failure to dry your Garment will result in the growth of mildew and bacteria which could lead to skin irritation, rashes, or may affect the protective qualities of the materials.
- D. Once the inside is completely dry, turn the Garment back to the correct side and dry the outside of the Garment.
- E. Do not use automatic dryers because the mechanical action and excessive heat may damage or shrink your Garment.
- F. Inspect the entire Garment according to Section 6 of this guide.

LION TotalCare® Centers offer record keeping services. For manual records, note each cleaning, inspection, and related transaction on the *Inspection, Cleaning, Repair, Retirement, and Disposal Record* located in the back of this Guide. Maintain this form unless your organization has provided you with a comparable recordkeeping method for this purpose.

### **WARNING**

Do not hang Garment to dry in direct or indirect sunlight, or in fluorescent light. Light will severely reduce the strength of the seams, and will discolor and greatly reduce the strength and protective qualities of the components of the Garment.

### 11.8 DO NOT DRY CLEAN

Never dry-clean your Garment. Dry-cleaning will damage the Garment and reduce its protective qualities.

### 11.9 CONTRACT CLEANING

LION recommends that only a LION TotalCare® Center be used for contract cleaning and inspection. Please refer to the back of this Guide for the LION TotalCare® Center information.





#### 11.10 BRUSH WASH

LION does **NOT RECOMMEND** brush washing your Garment because this method may damage your fabric.

#### 11.11 DECONTAMINATION AND DISINFECTION

Depending on the exposure, it can be difficult to determine whether chemicals have remained on an Garment after even after the most meticulous decontamination process has been performed. It is the responsibility of the Safety Officer in Charge, the AHJ, and the user to understand decontamination-related issues in order to make an informed decision concerning re-use of a Garment as chemical exposures may affect the material properties or potentially expose the user to harmful contaminants.

Applicable Standard. You must read and have facilities and procedures in compliance with NFPA 1581 Standard for Fire Department Infection Control Program.

Preparation. Remove contaminated and infected Garment from wearer and from service before beginning. The Garment should remain out of service until decontaminated and disinfected. Wear protective gloves and appropriate protective clothing and equipment while decontaminating and disinfecting.

#### **WARNING**

To reduce the risk of harm from hazardous substances, building materials, hazardous chemicals, and blood or body fluids, you **MUST** wash, and if necessary, decontaminate or disinfect your Garment after each exposure to such hazardous substances.

#### **WARNING**

Only a trained expert in decontamination should attempt to decontaminate this Garment. Contact a LION TotalCare® Center listed in the back of this Guide to seek assistance in determining whether decontamination is possible, and the name of the appropriate organization to perform decontamination.



#### A. Hazardous Chemicals

1. Before doffing, you should decontaminate your Garment at the scene to limit further exposure to hazardous chemicals, to prevent exposure to others, and to prevent chemicals from settling into your Garment. A number of portable decontamination showers are available for this use. If you do not have a field decontamination shower, you should at least hose down your contaminated Garment before doffing to help you avoid harm from contaminants on the Garment's surface.
2. **KNOWN MATERIALS:** Contact the source of the materials, your local HAZMAT Team, or the Health Department to determine whether the contaminants are hazardous materials. If the contaminant is known, contact a LION TotalCare® Center listed in this Guide to determine the feasibility of decontamination.
3. **UNKNOWN MATERIALS:** If the contaminant is not known, the Garment should remain out of service until the materials are identified. Always demand SDS information and be prepared to share your findings with the LION TotalCare® Center decontaminating your Garment. **If your Garment cannot be decontaminated, it must be retired and disposed of in accordance with federal, state, and local regulations.**

#### **CAUTION**

Personnel involved in the handling, sorting, bagging, transporting, and laundering of contaminated Garments must wear utility gloves and appropriate protective clothing to prevent occupational exposure during these activities.

#### B. Blood and Body Fluids

If your Garment has large areas of coverage of blood or body fluids, place and transport your Garment in a bag to prevent leakage. Contact a LION TotalCare® Center listed in this Guide to discuss disinfection.

### 11.12 **LAUNDRY SAFETY**

In the health care field, Laundry and Housekeeping personnel are considered to be among those at risk to not only hazardous materials, but also to bloodborne pathogens primarily by exposure to sharps. Your organization should have a Bloodborne Pathogens Written Exposure Control Plan. Part of this plan is decontamination, disinfection, and washing of PPE, and it should include **LAUNDRY ROOM SAFETY PROCEDURES** and **HOUSEKEEPING SAFETY PROCEDURES**. You should follow all appropriate federal, state, and local regulations.



## 12. REPAIRS

### **WARNING**

DO NOT ATTEMPT TO REPAIR YOUR Garment. Contact LION at (800) 421-2926 if your Garment requires repair.

## 13. STORAGE

If your Garment has been worn less than 24 hours, fold and bag your Garment according to the instructions in Section 13.1 below or in the individual element user guide, and store away from sharp objects that may cause tears or snags in the fabric. **If your Garment has been worn less than 24 hours and is in condition for further use, make sure that it has been cleaned, thoroughly dried according to Section 11 of this Guide, and thoroughly inspected before storing and re-using according to Section 6 of this Guide.**

### 13.1 GARMENT FOLDING AND BAGGING

Fold and rebag your Garment prior to storing per the following instructions:

- A. Lie Garment flat on a smooth surface, right-side out, face up.
- B. Fasten the zipper and hook-and-loop closures.
- C. Fold Garment in half vertically, laying the Garment's right sleeve and leg over the left sleeve and leg. Fold both sleeves back toward the center in an accordion style until they are the width of the Garment.
- D. Roll the Garment tightly from the socks to the neck, making sure you squeeze out all excess air.
- E. Return rolled Garment to its storage bag and close the bag.

### 13.2 STORAGE CONDITIONS

Store the Garment in its bag in a shaded location away from direct and indirect sunlight and fluorescent light with a constant temperature of approximately 70° F (21° C) and 40% relative humidity. Ensure that storage temperature or humidity varies no more than 10 degrees or 10 percent respectively. Avoid temperature extremes.

### 13.3 SHELF LIFE

You can store a new garment or a garment that has been worn less than 24 hours and is in condition for further use (See Warning Box on Pg. 9), cleaned, thoroughly dried, and rebagged properly for up to 10 years from its manufacture date under the storage conditions shown above. You must inspect your stored garment at least once annually according to Section 6 of this Guide.



**FIG. 3**  
Never store your Garment in direct sunlight, indirect sunlight, or in fluorescent light.

### **CAUTION**

Never store your Garment in living quarters with personal belongings, or within the passenger compartment of a vehicle. Prolonged exposure to contaminants remaining in the Garment may increase the risk of cancer or other diseases.



## HOW LONG IS USEFUL LIFE?

- Performance requirements are based on new, unworn Garments and Materials. Useful life varies depending on Garment materials selected, conditions of wear, maintenance, and storage, in this case, a maximum of 24 hours of wearing or 10 years of shelf life. (See Warning Box on Pg. 9).
- No products, including garments, footwear, or handwear, can offer absolute protection, even when new, and their protective performance will decline with wear, tear, abrasion, and other damage associated with use. W.L. Gore & Associates, Inc., and LION First Responder PPE, Inc. make no guarantee of how the product will perform in actual use.

## ⚠ WARNING

Avoid storing your Garment in temperature extremes. Repeated cycles of heating and cooling can reduce the protective qualities and useful life of the Garment. See Section 14 of this Guide for limitations on useful life.

## ⚠ WARNING

**NEVER STORE YOUR GARMENT IN DIRECT SUNLIGHT, INDIRECT SUNLIGHT, OR IN FLUORESCENT LIGHT (FIG. 3).** Exposure to light (particularly light in the sun's rays and fluorescent light) will severely weaken and damage the components in your Garment after only A FEW DAYS. Damage caused by exposure to light cannot be repaired, nor will the manufacturer cover such damage in its warranty. (See Warranty Information, Section 16 of this Guide.)

## 14. RETIREMENT

### 14.1 USEFUL LIFE AND RETIREMENT

Useful life is the period of time that this Garment, which has been properly cared for, can be expected to provide reasonable limited protection. The useful life will vary according to type and frequency of use. Retirement must be considered after a maximum of 24 wear-hours or when its 10-year shelf life has been exceeded. (See Section 13 of this Guide.) Other factors, such as described below, will determine if it needs to be retired before it has been worn a maximum of 24 hours (See Warning Box on Pg. 9), or reaches a maximum shelf life of 10 years after the manufacture date.

Your Garment should be carefully inspected after each use and at least annually as described in Section 6 of this guide to determine whether it has exceeded its useful life and must be retired.

The following factors affect the useful life of your Garment:

- Number and type of previous repairs** - A Garment repaired multiple times in the same places from on-duty damage will generally wear out sooner than less frequently damaged or repaired Garments.
- Type of work the wearer performed** - For example, knee areas that are used in crawling operations generally will wear out more quickly than other areas.
- Any exposure to flames or heat** - The Garment should be retired if directly exposed to heat, flames, or flash fire.
- Exposure to hazardous chemicals** - If the exposure to hazardous chemicals is severe, and decontamination is ineffective, the Garment may not be safe for further use.
- The length of exposure to direct or indirect sunlight, or other light sources such as fluorescent light** - Tests show that long term exposure to direct or indirect sunlight or fluorescent light causes any outer shell, protective barrier, and any component made with aramid fibers to become brittle, weak or degraded.



If you have questions about whether to retire your Garment, contact LION or a LION TotalCare® Center authorized for Protecting Clothing.

Trained professionals with in-depth knowledge of Garments and their limitations should handle the details of a retirement program. If you have any questions about the useful life and retirement of your Garment, get assistance before wearing your Garment into any hazardous environment!

### **WARNING**

No products, including garments, footwear, or handwear, can offer absolute protection, even when new, and their protective performance will decline with wear, tear, abrasion, and other damage associated with use. W.L. Gore & Associates, Inc. and LION make no guarantee of how the product will perform in actual use.

## **14.2 OUTER SHELL COLOR OR SHADE CHANGES**

Some fabrics may experience color or shade changes during their useful life as a result of washing and/or exposure to other conditions. These shade changes do not affect the fabric's protective properties.

Shade change or color loss could indicate material degradation. Contact the LION TotalCare® Center listed in the back of this Guide before re-use.

# **15. DISPOSAL**

## **15.1 DISPOSAL**

You must identify a retired Garment and store it separately from active-duty Garments or destroy it to prevent its unauthorized or mistaken use. Cut the Garment into several pieces and dispose of it properly. Two suggested methods of disposal are a landfill or incineration.

You should place a retired Garment that is contaminated with chemicals or bloodborne pathogens in a plastic bag and properly dispose of it. You should follow federal, state, and local regulations governing disposal of contaminated materials.

### **WARNING**

Use of any retired Garments in hazardous situations could result in serious injury or death. Clearly-marked retired uncontaminated Garments can only be used for non-hazardous training situations.



## **WARNING**

No products, including garments, footwear, or handwear, can offer absolute protection, even when new, and their protective performance will decline with wear, tear, abrasion, and other damage associated with use. W.L. Gore & Associates, Inc. and LION make no guarantee of how the product will perform in actual use.

## **CAUTION**

Most performance properties of the Garment and its components cannot be tested by the user in the field.

## **16. LIMITED WARRANTY INFORMATION**

LION warrants that its fire fighter and emergency responder products are free during their useful life from any defect in workmanship or any material defect.

Conditions of use are outside the control of LION. It is the responsibility of the user to inspect and maintain the products to assure they remain fit for their intended purpose. In order to maximize the useful life of these products and to maintain the warranty, the products are to be used only by appropriately trained personnel following proper emergency response techniques and in accordance with the product's warning, use, inspection, maintenance, care, storage, and retirement instructions. Failure to do so will void the warranty.

EXCEPT AS SET FORTH ABOVE, LION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE.

Under the above warranties, LION will repair or replace, at its option, any product which does not meet the above warranties. Such repair or replacement will be the purchaser's sole remedy and LION will not be responsible for any incidental, consequential, or other damages based upon or arising in any way from any breach of the warranties contained herein or the purchaser's use of such product.

These warranty obligations apply only to any product, part, or component which is returned to LION or a LION TotalCare® Center with prior authorization and proof of purchase, and which LION agrees to be defective as covered by this warranty.

The word "product" includes the product itself and any parts or labor furnished by LION with the sales, delivery, or servicing of the product.

**USEFUL LIFE: Useful life is the period of time that this Garment, which has been properly cared for, can be expected to provide reasonable limited protection.**

See Section 14 of this User Instruction, Safety, and Training Guide, Retiring Your Clothing. The useful life will vary according

to type and frequency of use. The Garment must be retired after a maximum of 24 hours of wearing or 10 years of shelf life. (See Warning Box on Pg. 9). Other factors, such as described below, will determine if it needs to be retired before it has been worn a maximum of 24 hours. (See Warning Box on Pg. 9).

### **DEFECTS IN WORKMANSHIP AND MATERIALS:**

Defects in Workmanship and Materials means poorly manufactured seams, stitching, or components (for example, loose or broken seams; zippers or snaps that fall off or do not function properly); and fabrics or barriers which have such flaws as holes, uneven spots, weak areas, pilling, or other flaws caused by irregularities in their manufacture.

### **EXCEPTIONS TO LIMITED WARRANTY**

This limited warranty does not cover the following items after receipt of product by end user:

- A. Claims made after 60 days from the date of shipment for damage to materials;
- B. Damage or color change from exposure of materials to direct or indirect sunlight or fluorescent light;
- C. Shade variations among textiles used or shade changes to fabrics caused by wear and tear and/or washing;
- D. Color loss due to abrasion (creases, folds, pleats, edges, collar points, etc.);
- E. Damage caused by improper washing, decontamination, disinfecting or maintenance (for example, use of chlorine or petrochemicals to clean);
- F. Damage caused by repair work not performed to factory specification;
- G. Damage from routine exposure to common hazards which may cause rips, tears, burn damage, or abrasion;
- H. Loss of retroreflectivity of reflective trim due to normal wear or heat exposure;
- I. Detachment of reflective trim due to thread abrasion or heat exposure;
- J. Replacement of zippers or closures worn partially sealed, or damaged by heavy wear and tear;
- K. Loss of buttons, snaps, or cuff hem seams.



## 17. SOURCES AND FOR FURTHER INFORMATION

National Fire Protection Association. Current Edition. NFPA 1990 *Standard for Protective Ensembles for Hazardous Materials and CBRN Operations*, NFPA 1994 *Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents*.

National Fire Protection Association. Current Edition. NFPA 1891 *Standard on Selection, Care, and Maintenance of Hazardous Materials, CBRN, and Emergency Medical Operations Clothing and Equipment*.

National Fire Protection Association. Current Edition. NFPA 1851 *Standard on Selection, Care and Maintenance of Ensembles for Structural Fire Fighting and Proximity Fire Fighting*.

National Fire Protection Association. Current Edition. NFPA 1581: *Standard on Fire Department Infection Control Program*

National Institute for Occupational Safety and Health. 1989. *Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers*.

Occupational Safety and Health Administration. 1991. Occupational Exposure to Bloodborne Pathogens: Final Rule. 29 CFR Part 1910.1030, Federal Register.

Occupational Safety and Health Administration. 1996 Hazardous Waste Operations and Emergency Response: 29 CFR Part 1910.120, Federal Register.

Southern Area Fire Equipment Research (SAFER). 1994. PPE Care and Use Guidelines.

West KH:, 1992. *Infectious Disease Handbook for Emergency Care Personnel*, 2nd Edition. Cincinnati: ACGIH, Cincinnati, Ohio.

### **For Further Information, contact LION**

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18. INSPECTION, CLEANING, REPAIR, RETIREMENT AND DISPOSAL RECORD

Garment ID \_\_\_\_\_ Model \_\_\_\_\_ Date of Garment Manufacture \_\_\_\_\_

In the spaces below, note the activities performed on your Garment during its wear life.  
Types of activities can include: Inspection; Cleaning; Decontamination; Repair; Alteration; Removal from Service; Retirement; Disposal, etc.

Date of Activity	Type of Activity	Reason for Activity	Description of Repair, Inspection Findings, etc.	Location on Garment	Inspection/ Cleaning/Repair Site	Activity Performed By	Date Returned to Service

Date of Retirement \_\_\_\_\_ Date and Method of Disposal \_\_\_\_\_



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