

# USER INSTRUCTION, SAFETY AND TRAINING GUIDE



## Dual Certified NFPA 1951/NFPA 1999 Compliant Garment for Technical Rescue and Emergency Medical Operations

7200 POE AVE.  
DAYTON, OHIO 45414  
[www.LIONprotects.com](http://www.LIONprotects.com)

October 2020



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### DANGER

**You MUST read this Guide and all Garment Safety, Cleaning and Information labels before wearing.**

Burns are a function of time and temperature. First degree skin burns can occur when skin reaches a temperature of as low as 118° F (47.8° C).

Fire burns at temperatures up to 2000° F (1093.3° C) or higher.

This Garment provides limited protection against flame, in compliance with NFPA 1951 and limited protection against abrasion, puncture, chemical and body fluids in compliance with NFPA 1951 and NFPA 1999. While wearing this Garment, you may be burned without heat sensation or warning in some circumstances and without any sign of damage to the Garment.

This Garment does NOT include an inner thermal liner and **MUST NOT BE WORN FOR ANY FIREFIGHTING OPERATIONS.**

## **⚠ DANGER**

You must read and understand these warnings and instructions. **DO NOT WEAR THIS GARMENT FOR ANY FIRE FIGHTING ACTIVITY.** Failure to follow these warnings and instructions will result in serious injury or death.

6187


- Wear this garment **ONLY** FOR SEARCH, RESCUE, RECOVERY, AND SITE STABILIZATION AT TECHNICAL RESCUE INCIDENTS AND FOR EMERGENCY PATIENT CARE DURING EMERGENCY MEDICAL OPERATIONS
  - Before wearing this 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 in Technical Rescue Incidents or in Emergency Medical Operations and have knowledge of the proper selection, fit, use, care and limitations of protective clothing and equipment.
- Download the [User Instruction, Safety and Training Guide](#) at [www.LIONppe.com](http://www.LIONppe.com)  
Or contact LION @ 800-421-2926

- This garment provides limited protection against flame and no protection against heat or compression. Minimize exposure to heat. You may be burned without warning or without receiving damage to garment. Avoid contact with hot objects. Skin burns occur when skin reaches a temperature of 118 F. Fires burn at temperatures up to 2000 F.
  - For NFPA 1951 Optional Blood-Borne Pathogen Protection and for NFPA 1999 compliance, the moisture barrier component must be attached to the outershell.
  - Moisture and/or compression in your garment may reduce protection.
  - 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 instructions.
  - This garment has limited useful life. You must inspect regularly and retire when appropriate according to the User Instruction, Safety and Training Guide
- See also NFPA 1855.

**DO NOT REMOVE OR WRITE ON THIS LABEL!**

REV. 4.0 11/2020

### 1. Garment Safety Label



Questions, write or call immediately:  
LION  
7200 POE AVE., SUITE 400 DAYTON, OH 45414. 1-800-421-2926

6477  
Rev. 4.0 11/2020

CLEANING AND STORAGE INSTRUCTIONS


- USERS MUST CLEAN, INSPECT, MAINTAIN, STORE AND ALTER ONLY IN ACCORDANCE WITH THE USER INSTRUCTION, SAFETY AND TRAINING GUIDE.
- DOWNLOAD THE USER INSTRUCTION SAFETY AND TRAINING GUIDE @ [WWW.LIONPPE.COM](http://WWW.LIONPPE.COM)
- NEVER USE CHLORINE BLEACH. CHLORINE BLEACH WILL SIGNIFICANTLY COMPROMISE THE PROTECTION AFFORDED BY TEXTILE AND FILM MATERIALS UTILIZED IN THE CONSTRUCTION OF THIS GARMENT.
- FASTEN ZIPPERS AND HOOK AND LOOP AND TURN INSIDE OUT OR PLACE IN A LAUNDRY BAG.
- MACHINE WASH, WARM WATER, USING ONLY LIQUID DETERGENT AND IF NEEDED, LIQUID NON-CHLORINE BLEACH.
- DOUBLE RINSE IN COOL WATER. NEVER USE FABRIC 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.

THIS TECHNICAL RESCUE PROTECTIVE ENSEMBLE GARMENT ELEMENT MEETS THE REQUIREMENTS OF NFPA 1951, STANDARD ON PROTECTIVE ENSEMBLES FOR TECHNICAL RESCUE INCIDENTS, 2020 EDITION.


THIS GARMENT MEETS THE OPTIONAL BLOOD-BORNE PATHOGEN PROTECTION REQUIREMENTS OF NFPA 1951-2020. THIS GARMENT MEETS THE MULTIPLE-USE EMERGENCY MEDICAL GARMENT REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING AND ENSEMBLES FOR EMERGENCY MEDICAL OPERATIONS, 2018 EDITION.

**DO NOT REMOVE THIS LABEL!**

PROTECTIVE GARMENT FOR TECHNICAL RESCUE INCIDENTS IN ACCORDANCE WITH NFPA 1951-2020. PROTECTIVE MULTIPLE-USE GARMENT FOR EMERGENCY MEDICAL OPERATIONS IN ACCORDANCE WITH NFPA 1999-2018 3KF9

 MH29126

When worn with the inner liner and outer shell assembled together, this garment meets the personal protective equipment criteria of US Dept. of Labor OSHA Bloodborne Pathogens Standard, Title 29 CFR, Part 1910. 1030.



Questions, write or call immediately:  
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6478  
Rev. 4.0 11/2020


CLEANING AND STORAGE INSTRUCTIONS

- USERS MUST CLEAN, INSPECT, MAINTAIN, STORE AND ALTER ONLY IN ACCORDANCE WITH THE USER INSTRUCTION, SAFETY AND TRAINING GUIDE. DOWNLOAD AT [WWW.LIONPPE.COM](http://WWW.LIONPPE.COM)
- NEVER USE CHLORINE BLEACH. CHLORINE BLEACH WILL SIGNIFICANTLY COMPROMISE THE PROTECTION AFFORDED BY TEXTILE AND FILM MATERIALS UTILIZED IN THE CONSTRUCTION OF THIS GARMENT.
- FASTEN ZIPPERS AND HOOK AND LOOP AND TURN INSIDE OUT OR PLACE IN A LAUNDRY BAG.
- MACHINE WASH, WARM WATER, USING ONLY LIQUID DETERGENT AND IF NEEDED, LIQUID NON-CHLORINE BLEACH.
- DOUBLE RINSE IN COOL WATER. NEVER USE FABRIC 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.

THIS TECHNICAL RESCUE PROTECTIVE ENSEMBLE GARMENT ELEMENT MEETS THE REQUIREMENTS OF NFPA 1951, STANDARD ON PROTECTIVE ENSEMBLES FOR TECHNICAL RESCUE INCIDENTS, 2020 EDITION.

**DO NOT REMOVE THIS LABEL**

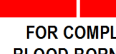
PROTECTIVE GARMENT FOR TECHNICAL RESCUE INCIDENTS IN ACCORDANCE WITH NFPA 1951-2020.

 MH29126

When worn with the inner liner and outer shell assembled together, this garment meets the personal protective equipment criteria of US Dept. of Labor OSHA Bloodborne Pathogens Standard, Title 29 CFR, Part 1910. 1030.

### 2. Garment Shell Only Cleaning Label

### 3. Liner Cleaning Label



**⚠ WARNING**

FOR COMPLIANCE WITH THE GARMENT REQUIREMENTS OF NFPA 1999 AND THE BLOOD-BORNE PATHOGEN PROTECTION OPTIONAL REQUIREMENTS OF NFPA 1951. THE FOLLOWING PROTECTIVE ITEMS MUST BE WORN IN CONJUNCTION WITH THIS GARMENT:

THE MOISTURE BARRIER COMPONENT ATTACHED TO AN OUTERSHELL 5.3OZ MINIMUM WEIGHT.

WEARING OF THIS GARMENT ALONG ROADSIDES OR OTHER AREAS WITH VEHICULAR TRAFFIC REQUIRES ADDITIONAL HIGH VISIBILITY SAFETY APPAREL COMPLIANT WITH AT LEAST THE CLASS 2 REQUIREMENT OF ANSI/ISEA 107.

This moisture barrier component provides NO limited protection against heat, flames, chemical or biological hazards. Never wear this moisture barrier component without the SAME SIZE AND MODEL OUTER SHELL, as identified on labels located on each detachable component.

To reduce the risk of injury or death, you must assemble and wear together ALL of the following items:


1. protective coat and pant with outer shell and attached moisture barrier.
2. gloves
3. boots
4. helmet with eye protection.

ALWAYS make sure that all ensemble layers have the proper overlap and that all items fit with adequate looseness. Tight fit lowers insulation protection and restricts mobility.

**MADE IN THE U.S.A.**


**DO NOT REMOVE OR WRITE ON THIS LABEL!**

6235  
REV. 3.0 11/2020



LION

PFTE—LAMIN ARAMID: CROSSTECH SR  
REQ:356383  
MFG DATE:08/2020  
CUT:135579AA001  
MODEL:CSRM  
LINER:C25CSR  
SIZE:4629XS



0006252682  
TAG: KYESHA DULA

### 4. Liner Attachment Safety Label

### 5. Garment Information Label

**Copies of labels used only in NFPA 1951 and NFPA 1999 Dual-Certified Garments**

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## 1. INTRODUCTION

Congratulations on purchasing your new LION product! Your NFPA 1951/ NFPA 1999 Dual-Certified Garment for Technical Rescue and Emergency Medical Operations (referred to throughout this Guide as the “NFPA 1951/NFPA 1999 Dual-Certified Garment”, “Technical Rescue/EMS Garment”, or “Garment”) is designed to provide limited protection against physical, environmental, flame, chemical splash and bloodborne hazards to emergency responders involved in search, rescue, extrication, treatment, recovery, site stabilization and other mitigation operations at or involving Technical Rescue and/or EMS incidents. The garment is not designed for exposure to thermal or radiant heat. It and its components are manufactured and certified under the performance requirements of *NFPA 1951: Standard on Protective Ensemble for Technical Rescue Incidents* and *NFPA 1999 Standard on Protective Clothing and Ensembles for Emergency Medical Operations*.

This User Instruction, Safety and Training Guide gives important instructions regarding the use, inspection, care, maintenance, storage and retirement of your NFPA 1951/NFPA 1999 Dual-Certified Garment. Immediately upon receipt of your Garment and this User Instruction, Safety and Training Guide, carefully read and save this Guide for future reference.

This Guide is a training tool to help you understand your NFPA 1951/NFPA 1999 Dual-Certified Garment and how to use it in the safest possible manner during Technical Rescue/EMS operations. Please take the time to read it.



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 applicable labels, 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

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

**Aramid Fibers** – Specially manufactured polymer fibers in which the fiber-forming material consists of linked, long chain-like structures of large molecules. Aramid fibers exhibit higher resistance to flammability, higher strength and higher elasticity than ordinary synthetic or natural fibers. Fabrics made from aramid fibers maintain their integrity at high temperatures and are used in protective clothing and other industrial applications.

**Authority Having Jurisdiction** – An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

**Barrier Layer** – The layer of material designated as providing body fluid-borne pathogen and hazardous liquid resistance.

**Body Substance Isolation** – A concept practiced by emergency responders whereby blood and ALL other body fluids are considered a risk for transmission of bloodborne diseases.

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

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

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

**Body Fluids** – Fluids produced by the body including, but not limited to, blood, semen, mucous, feces, urine, vaginal secretions, breast milk, amniotic fluid, cerebrospinal fluid, synovial fluid and pericardial fluid.

**Component(s)** – Any material, part or subassembly used in the construction of the NFPA 1951/NFPA 1999 Dual-Certified Garment.

**Emergency Medical Garment** – Any item of emergency medical protective clothing designed and configured as a single garment or assembly of multiple garments to provide barrier protection to the wearer's upper and lower torso, excluding the hands, face and feet.

**Emergency Medical Operations** – Emergency patient care and transportation prior to arrival at a hospital or other health care facility.

**Emergency Medical Protective Clothing** – Multiple items of protective clothing, including garments, examination gloves, work gloves, cleaning gloves, footwear and footwear covers and face protection and barrier protection against blood and body fluid-borne pathogens contact with the wearer's body during delivery of emergency patient care and other emergency medical functions.

**Entry Firefighting** – EXTRAORDINARILY specialized firefighting operations that can include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing very high levels of conductive, convective and radiant heat; such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Highly specialized thermal protection from exposure to extreme levels of conductive, convective and radiant heat is necessary for persons involved in such EXTRAORDINARILY specialized operations and because direct entry into the flames is made. NFPA 1951/NFPA 1999 Dual-Certified Garments are NEVER to be used for entry firefighting or any direct contact with flames or molten metals, and do not provide the required level of protection.

**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 Resistance** – The property of a material whereby the application of a flaming or non-flaming source of ignition and the subsequent removal of the ignition source results in the termination of combustion. Flame resistance can be an inherent property of the material or it can be imparted by specific treatment.

**Flame Retardant** – A chemical compound that can be incorporated into materials or a textile fiber during manufacture or treatment to reduce its flammability.

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

**Fluorescence** – The process by which radiant flux of certain wavelengths is absorbed and reradiated, nonthermally in other, usually longer, wavelengths.

**Garment** – (Also referred to as NFPA 1951/NFPA 1999 Dual-Certified Garment.) The term Garment used throughout this Guide refers ONLY to NFPA 1951/NFPA 1999 Dual-Certified Garments for Technical Rescue and Emergency Medical Operations, which include coats, trousers or coveralls. NFPA 1951/NFPA 1999 Dual-Certified Garments are NOT Structural, Entry or Proximity firefighting protective clothing.

**Guide** – Means this User Instruction, Safety and Training Guide.

**Heat Flux** – The thermal intensity indicated by the amount of power per unit area. The heat flow rate through a surface of unit area perpendicular to the direction of heat flow.

**Inner Liner** – The liner portion of a multi-layer NFPA 1951/NFPA 1999 Dual-Certified Garment consisting of the barrier layer. The Inner Liner must ALWAYS be attached to the Outer Shell whenever the Garment is in service for Rescue/Recovery and EMS incidents.

**Interface Area** – An area of the body where the protective garments, helmet, gloves, footwear or respiratory facepiece meet, i.e. the protective coat--helmet--SCBA facepiece area, the protective coat--protective trouser area, the protective coat--glove area, and the protective trouser--footwear area.

**ISP** – Acronym for Independent Service Provider. An independent third party utilized by an organization to perform any one or any combination of advanced inspection, advanced cleaning or repair services.

**NFPA** – Acronym for National Fire Protection Association. A private sector, volunteer-based standard-making organization that develops guidelines related to fire protection and prevention.

**NFPA 1951/NFPA 1999 Dual-Certified Garment** – (Also referred to in this Guide as Garment). Means a Garment certified by a private, third party certification organization (for example, Underwriters' Laboratories) to meet at the time of manufacture the design and performance requirements of the NFPA 1951/NFPA 1999 Standards.

**OPIM** – Acronym for Other Potentially Infectious Materials. Includes semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, amniotic fluid and peritoneal fluid.

**OSHA** – Acronym for Occupational Safety and Health Administration. A government-based standard-making body that develops public health and safety standards for the workplace.

**Outer Shell** – The outermost layer of a multi-layer composite with the exception of trim and any hardware, reinforcing material or wristlet material. Also referred to as "shell".

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

**Protective Element** – The parts or items that comprise the protective ensemble. The protective ensemble elements are: coats, trousers, coveralls, helmets, gloves, footwear and interface components.

**Proximity Firefighting** – Specialized firefighting operations that can include the activities of rescue, fire suppression and property conservation at incidents involving fire producing very high levels of conductive, convective and radiant heat such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Specialized thermal protection from exposure to high levels of radiant heat, as well as thermal protection from conductive and convective heat, is necessary for persons involved in such operations. NFPA 1951/NFPA 1999 Dual-Certified Garments are NEVER to be used in proximity firefighting and do not provide the required level of protection.

**Recovery** – 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.

**Responder/Emergency Responder** – Emergency personnel involved in Technical Rescue and/or Emergency Medical Operations.

**Retroreflection/Retroflective** – The reflection of light in which the reflected rays are preferentially returned in the direction close to the opposite of the direction of the incident rays, with this property being maintained over wide variations of the direction of the incident rays.

**Retroreflective Markings** – A material that reflects and returns a relatively high proportion of light in a direction close to the direction from which it came.

**SAFER** – Acronym for Southern Area Fire Equipment Research. An established body of fire equipment users with expertise in the research and evaluation of firefighting personal protective equipment.

**SCBA** – Acronym for Self-Contained Breathing Apparatus.

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

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

**Stabilization** – Those activities directed at mitigating the dangerous elements of an emergency incident.

**Structural Firefighting** – The activities of rescue, fire suppression and property conservation in buildings, enclosed structures, vehicles, marine vessels or like properties that are involved in a fire or emergency situation. NFPA 1951/NFPA 1999 Dual-Certified Garments are NEVER to be used in proximity firefighting and do not provide the required level of protection.

**Technical Rescue Incidents** – Complex rescue incidents requiring specially trained personnel and special equipment to complete the mission.

**Technical Rescue Protective Ensemble** – A protective ensemble that includes but is not limited to garments, helmets, goggles, gloves, and footwear.

**Technical Rescue Protective Garment Element** – The coat, trouser or overall element of the certified y technical rescue protective ensemble that provides protection to the upper and lower torso, arms and legs.

**TPP** – Acronym for Thermal Protective Performance.

**Trench/Cave-In Rescue** – The activity of rescue during the collapse or cave-in of a trench. A trench is deeper than it is wide.

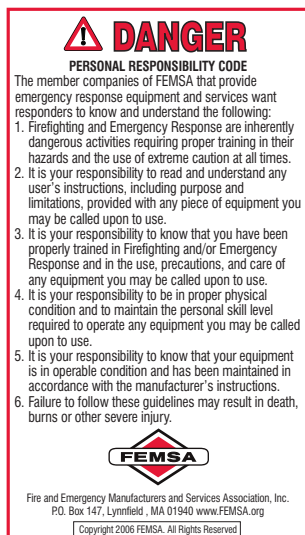
**Trim** – Retroreflective and fluorescent materials attached to the outermost surface of the protective ensemble for visibility enhancement. Retroreflective materials enhance nighttime visibility, and fluorescent materials enhance daytime visibility. "Trim" is also known as "visibility markings".

**Useful Life** – The period of time that NFPA 1951/NFPA 1999 Dual-Certified Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life of Garments is **normally 3 to 5 years**, depending on the materials making up the outer shell and barrier layer in a multi-layer garment, or the trilaminate material used in a single-layer garment, and the conditions of wear, maintenance and storage. **Useful life is highly unlikely to be more than 7 years.** See Section 15 of this Guide.

**UV (Light or Radiation)** – Acronym for Ultraviolet Light. A type of radiated electromagnetic energy commonly found in the sun's rays.

**Universal Precautions** – Under universal precautions, blood and certain body fluids of all patients are considered potentially infectious for human immunodeficiency virus (HIV), hepatitis B virus (HBV) and other bloodborne pathogens.

**Vehicle/Machinery Functional Capability** – The activity of removing a victim from a vehicle or machine at an emergency incident.



**FIG. 1**  
**Personal Responsibility Code**  
**Also shown on back cover of this Guide.**

### 3. SAFETY CHECKLIST

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

1. Have you completed a formal training course in Technical Rescue and/or EMS techniques, the proper use of Technical Rescue and/or EMS equipment and NFPA 1951/NFPA 1999 Dual-Certified Garments?  
☐ Yes    ☐ No
2. Have you read and understood all the instructions and warnings throughout this Guide as well as all the safety, cleaning and information labels on the Garment?  
☐ Yes    ☐ No
3. Will you regularly inspect your Garment inside and out for any tears, holes, thin spots, worn areas, color change, dirt, contaminants, leaks, embrittlement or any other conditions discussed in Section 6 of this Guide?    ☐ Yes    ☐ No
4. Have you studied the limitations of your Garment as described throughout this Guide?    ☐ 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 your Garment is used, inspected, maintained, stored and retired according to instructions in this Guide?    ☐ Yes    ☐ No
7. Do you understand that when your skin reaches a temperature of 118° F, you will be burned and that in some situations you may not feel a heat sensation or pain while wearing your Garment, or receive damage to your Garment prior to being burned?  
☐ Yes    ☐ No
8. Have you read, do you understand and do you agree to assume the risks and responsibilities listed in the Personal Responsibility Code? See **FIG. 1** and back cover of this Guide.  
☐ Yes    ☐ No

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

## 4. PURPOSE AND LIMITATIONS

This Garment is designed to provide LIMITED protection under the requirements of the NFPA 1951 and NFPA 1999 Standards to the legs, torso and arms against hazards TO EMERGENCY RESPONDERS INVOLVED IN SEARCH, RESCUE, EXTRICATION, TREATMENT, RECOVERY, SITE STABILIZATION AND OTHER MITIGATION OPERATIONS AT OR INVOLVING TECHNICAL RESCUE AND/OR EMS INCIDENTS, INCLUDING:

- Flame resistance,
- Liquid splash of six common fireground chemicals, including AFFF, battery acid, hydraulic fluid, surrogate gasoline, swimming pool chlorine (65% free chlorine solution) and automobile antifreeze (see Section 10),
- Penetration of blood and other body fluids,
- Environmental, including moisture and cold weather,
- Physical hazards, including cuts and abrasion.

### **DANGER**

**DO NOT use this Garment for the following:**

- **Structural, Proximity and Entry Firefighting (see Definitions)**
- **Activities requiring direct contact with flames or molten metal**
- **Protection against all hazardous materials, and all biological or radiological agents.**

### **DANGER**

Technical Rescue and/or EMS personnel 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 their NFPA 1951/NFPA 1999 Dual-Certified Technical Rescue/EMS Garment!

Emergency responders can encounter many common liquids during normal performance of their duties. The reference to limited protection from liquid splash from 6 common fireground chemicals should not be interpreted to mean that the Garments are suitable or are permitted to be used for protection to the wearer during any hazardous materials situation.

The moisture barrier in this garment has not been evaluated for protection against all chemicals that can be encountered during technical rescue operations. Garments that have been exposed to chemicals should be inspected in accordance with Chapter 6 of this Guide and in accordance with NFPA 1855 to evaluate for any adverse effects.

### **Risk Assessment**

The authority having jurisdiction (see Definitions) should perform a risk assessment to identify the hazards present and to determine the suitability of the NFPA 1951/NFPA 1999 Dual Certified Garment. For each of the activities described as Technical Rescue/EMS rescue incidents, the authority having jurisdiction should determine if protection provided by this Garment is commensurate with the level of protection needed as deemed by the hazards present. For example, in an automobile extrication the decision for using Technical Rescue/EMS protective ensembles versus structural firefighting protective ensembles can be dependent on the level of fire risk at the incident.



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.



Do not use for protection against hazardous biological agents.



Do not use for protection against hazardous chemical agents.

Your Technical Rescue Garment consists of an outer shell and barrier layer. When worn together properly, the Garment is certified to the Optional Blood-Borne Pathogen Protection Requirements of NFPA 1951. When worn without the barrier layer, the outer shell is certified as a NFPA 1951 Technical Rescue Protective Garment. When worn without the barrier layer, the outer shell is certified as a NFPA 1951 Technical Rescue Protective Ensemble.

### **WARNING**

Controlled lab tests in the NFPA 1951 and NFPA 1999 Standards “should not be deemed as defining or establishing performance levels for protection from all environments”. You should always use extreme caution in any Technical Rescue and/or EMS incidents to avoid the risk of injuries. See NFPA 1951 and NFPA 1999.

### **WARNING**

Protective properties in a new NFPA 1951/NFPA 1999 Compliant Garment 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.

### **WARNING**

Wearing of this garment along roadsides or other areas with vehicular traffic requires additional high visibility safety apparel, compliant with at least the Class 2 requirements of ANSI/ISEA 107.

### **DANGER**

Burns are a function of time and temperature. The higher the temperature of the heat source and the longer the exposure time, the greater the severity of burns.

#### FIRST DEGREE BURNS

begin when skin temperature reaches approximately **118° F (47.8° C)**.

#### SECOND DEGREE BURNS

occur when skin temperature reaches approximately **131° F (55° C)**.

#### THIRD DEGREE BURNS

occur when skin temperature reaches approximately **152° F (66.7° C)**.

You may have **very little or no warning time** from feeling heat or pain before skin begins to burn at 118° F (47.8° C). You need to be constantly aware of the buildup of heat in the surrounding environment and in your Garment and be ready to escape to a cool area where you can remove hot Garments quickly to help prevent or reduce the severity of burns.

### **WARNING**

NFPA 1951/NFPA 1999 Dual-Certified Garments should **NEVER** be used by responders in auto extrication incidents where there is **ANY** risk of fire.



## 5. GARMENT CONSTRUCTION, FEATURES, AND FUNCTION

In order to understand the limits of protection provided by your Garment, you should study its construction, features, and function.

### 5.1 OVERVIEW

Your Garment helps reduce health and safety risks to the Technical Rescue and/or EMS responder. It protects the responder because it is made of special heat and flame resistant textiles which when exposed to flame, char instead of melt or combust, thereby reducing further injuries that can be caused by the ignition of the materials. Second, the thickness of the fabrics also creates limited insulation which contributes to the limited protection to the wearer against heat and flame. Third, the barrier layer provides protection against liquid penetration from water from the outdoor environment, from chemical splash or from exposure to blood-borne pathogens associated with the incident.

Your 1951/1999 Dual-Certified Garment is designed to meet the requirements of NFPA 1951, including the Optional Blood-Borne Pathogen requirements. When the outer shell and inner liner are worn together, the Garment meets the optional Blood-Borne Pathogen requirements of NFPA 1951 and the requirements of NFPA 1999. When the outer shell is worn alone (inner liner removed), the Garment meets the base requirements of NFPA 1951 only.

Upon request, all documentation required by this standard and data showing compliance with this standard may be provided.

### 5.2 STRUCTURE

Two-layer structure: Your Garment is made with two primary layers: an outer shell and a barrier layer. The barrier layer is removable for cleaning, inspection, and decontamination. When Blood-Borne Pathogen protection is required, Garments should NEVER be worn without the barrier layer in place.

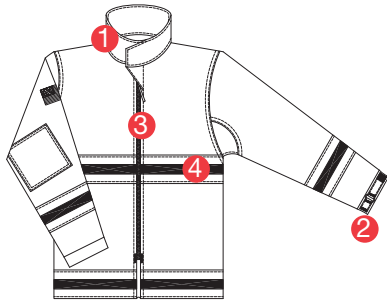
### 5.3 OUTER SHELL

The outer shell is made of material with limited resistance to the effects of heat, flame, and abrasion. It also offers limited protection for the barrier layer. The outer shell fabrics available from different textile and fiber manufacturers have varying useful life characteristics and color fast properties.

## 5.4 BARRIER LAYER

The barrier layer is either a film or a coating on a substrate which reduces the amount of water from the environment that might penetrate to the inside of the Garment. The barrier layer is bonded to a substrate to give it strength and durability. All breathable barrier layers have the ability to prevent liquid moisture from passing through, while allowing the passage of moisture vapor. Breathability allows some body heat to escape the inner layers and move outside the Garment. This promotes evaporative cooling of the responder's body.

The barrier layer should always be removed for washing, inspection or decontamination and be properly reinstalled before using your Garment.



## 5.5 OTHER IMPORTANT SAFETY FEATURES (FIG. 2)

**Collar 1:** Your coat has a collar which must be raised up and closed with the Hook and Loop Closure in order to provide limited protection to the neck area from heat, flame and other hazards.

**Sleeve Cuffs 2:** Have a closure system that can be adjusted to provide a snug and secure fit around the wrists while wearing technical rescue gloves.

**Closure Systems 3:** On the front of the coat and trousers, when properly fastened, prevent entry of water and prevent the coat and trousers from coming open during Technical Rescue and/or EMS activities.

**Retroreflective and Fluorescent Trim 4:** Improves your visibility in low-light conditions, however it does not meet the requirements in ANSI/ISEA 107, *American National Standard for High-Visibility Safety Apparel and Accessories*.

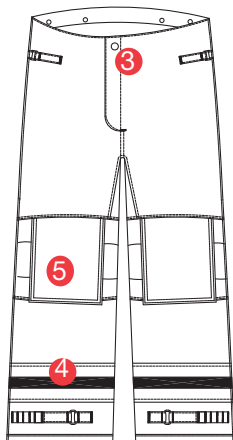
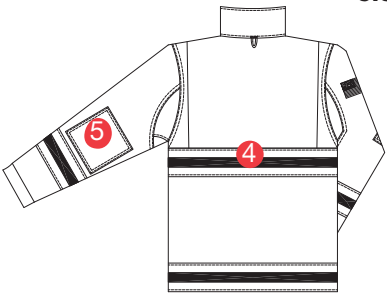


FIG. 2

Key Elements of NFPA 1951/NFPA 1999 Dual-Certified Garments.

### WARNING

You must wear your NFPA 1951/NFPA 1999 Dual-Certified Garment at all times during any emergency operation near roads or highways. The retroreflective and fluorescent trim increases the chance of being seen by motorists and decreases the probability of injury.

**Pockets (Optional):** Located on coat and pants, provide storage for tools.

**Reinforcements 5:** Provide reinforcement at the knees and elbows against heat and flame, cuts and abrasion.

**Labels:** There are 3 important safety, cleaning and information labels, all located on the inside of the inner liner of all coats, and trousers. The Garment Safety Label provides critical safety information and directs you to read and understand this Guide. The Cleaning Label explains washing, drying and storage instructions. The Barrier Layer Attachment Safety Label warns the user about the need to always wear the Garment with the outer shell and barrier layer attached.

In addition, the Garment Information Label, located on the stormflap inside the front closure, lists the Garment model, the date of manufacture and has a barcode to help track the Garment's washing and repair history.

Samples of the labels are located on page 2 of this Guide.

## 6. INSPECTION

Your Garment should be cleaned, inspected and repaired in a frequency and manner consistent with your fire department's protocol, NFPA 1855 and NFPA 1951/NFPA 1999.

### 6.1 PREPARATION

Read all Safety, Cleaning and Information Labels (See Section 5.5 of this Guide for location). If any of the labels are missing, return the Garment to the manufacturer immediately.

### 6.2 FREQUENCY

#### Routine Inspection:

Inspect your Garment, including its outer shell, barrier and other components at the following times:

- Upon receipt of your new Garment or replacement component;
- After each use or at least monthly (whichever is greater) during the useful life of the Garment;
- After exposure to heat, flames, chemicals or firefighting agents (including AFFF foam and water);
- After exposure to body fluids (including blood); and
- After washing, repair or decontamination.

#### Advanced Inspection:

Your Garment should undergo a regular Advanced Inspection by an expert in the fire department who has been trained by LION, LION TotalCare® or a verified Independent Service Provider (ISP) at least annually, or whenever you have a question about whether a Garment is fit for use.

### 6.3 INSPECTION PROCESS AND CRITERIA

#### 1. Preparation for Inspection

- A. Ensure that Garments are clean. If any have been contaminated by hazardous materials or biological agents, make sure they have been decontaminated. This is important for your safety, and for assurance that potential problems are not masked by incidental residue.
- B. Place Garment on a clean surface in a brightly lighted area.
- C. Separate outer shell from inner liner.

Pay close attention to high abrasion areas such as the shoulders, back/waist area, knees, crotch, and seat. Where you see potential damage to the outer shell, examine the corresponding area on the moisture barrier.

#### 2. Inspection of the Barrier Layer and Outer Shell Attachment System

- A. Locate the zipper, hook and loop and/or snap attachments.
- B. Disconnect and examine snaps for corrosion and make sure their attachments to the garment are secure.
- C. Ensure that all snaps function well.
- D. Engage and disengage hook and loop attachments to make sure they function well. Examine for worn or abraded pieces that require replacement. Check stitching for loose thread that would require repair.

#### **WARNING**

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

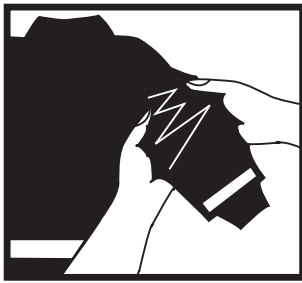


FIG. 3

Test fabric strength with thumbs

### 3. Inspection of the Outer Shell (Routine and Advanced Procedure)

- A. Fabric: Examine for dirt, discoloration, thin spots, holes, tears, embrittlement, cracking, burns, abrasions and worn spots.
  - a. Discoloration is a sign of overexposure to light or heat.
  - b. Embrittlement, cracking or burns are a sign that other layers may be worn out or damaged and must be thoroughly inspected.
  - c. Grasp any part of the fabric that may be damaged or flawed in both hands and try to push your thumbs through the fabric. **(FIG. 3)**. If the fabric punctures, you must repair the outer shell (if economically practical), replace it or retire the entire Garment and dispose of it in accordance with Sections 15 and 16 of this Guide.
- B. Closure Systems: Examine for functionality and damage.
  - a. Hook and Loop – Engage and disengage hook and loop attachments to make sure they function well. Examine for worn, abraded, curled or melted pieces that require replacement. Check stitching for loose thread that would require repair.
  - b. Zippers – Examine all zippers for functionality and corrosion that would require replacement. Check stitching for loose threads that would require repair.
  - c. Hardware – Examine all hardware (i.e., hooks and dees or snaps) for corrosion or other damage that would require replacement. Check that their attachment to the Garment is secure.
- C. Retroreflective and Fluorescent Trim: Inspect Garment for missing, burned, loose, melted or torn trim that has lost its retroreflective or fluorescent properties.
  - a. Damaged trim must be replaced.
  - b. Loose trim that maintains its reflectivity and fluorescence must be re sewn to the Garment.
  - c. The retroreflective properties may be evaluated by performing a flashlight test: hold a bright flashlight at eye level, either next to the temple or on the bridge of the nose, and aim the light beam at the Garment trim. Stand about 40 feet (12 meters) away. Compare reflected light from the Garment trim to a sample of new trim. If the reflected light is noticeably less than that reflected by the sample, contact LION TotalCare® or a verified ISP to repair or replace.
- D. Reinforcements, Pockets, Flashlight Loops, Hanger Loops, Letters, etc: Examine all reinforcements and components to make sure they are securely sewn to the Garment. Check hook and loop or snap fasteners on pocket flaps for functionality and damage.
- E. Accessories: Check all accessory items to ensure that they meet manufacturer's specifications and approval.
- F. Stitching and Seams: Examine all seams for loose threads, breaks, skipped stitches or weaknesses.
- G. Labels: Verify that all Safety, Cleaning and Information labels are on the Garment and are legible. See page 2 and Section 5.7 of this Guide.



#### 4. Inspection of the Inner Liner

A. Fabrics: Visually and manually examine the barrier layer of your inner liner for these and other signs of possible damage, such as:

- Abrasion
- Fraying
- Broken stitches
- Holes, cuts or tears
- Ridges
- Cracking
- Rough spots
- Dirt
- Thin spots
- Discoloration
- Worn spots
- Embrittlement

Some damage may not be visible to the user. If you see or feel any signs of damage or detect anything unusual, the entire inner liner should be inspected only by an expert trained by LION, a LION TotalCare® Center, or verified ISP.

B. Stitching and Seams: Examine all seams for loose threads, breaks, skipped stitches or weakness.

C. Labels: Verify that all Safety, Cleaning and Information labels are on the Garment and are legible. See pg. 2 and section 5.5 of this Guide.

#### 6.4 RECORDKEEPING

LION TotalCare® Centers offer recordkeeping services in compliance with NFPA 1855. 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 recordkeeping method for this purpose.

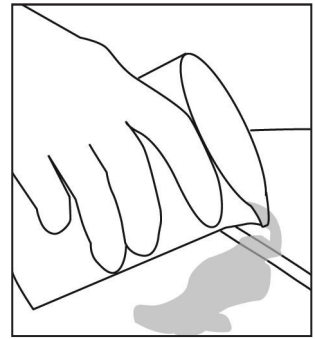


FIG. 4

#### **WARNING**

If during Technical Rescue and/or EMS operations, you perceive that water is passing through your barrier layer from the outside, remove the Garment from service and have the Garment inspected by a LION TotalCare® Center or a verified ISP. Passage of outside water through the liner means that the barrier layer is damaged or deteriorated and must be replaced.

## 7. DONNING AND DOFFING

**PREPARATION:** Before donning, check to make sure that the inner liner and the outer shell are secured together at the torso, neck and wrist areas on the coat, and at the torso and ankle areas on the trousers.



FIG. 5A



FIG. 5B



FIG. 5C

### **⚠ WARNING**

For Technical Rescue and/or EMS operations, NEVER wear the outer shell without installing the correct barrier layer; NEVER wear the barrier layer without attaching the correct outer shell to it. The outer shell and barrier layer alone do not provide the limited liquid barrier protection against the hazards associated with Technical Rescue and/or EMS incidents.

#### 7.1 PANTS

With the fly closure unfastened, hold open the pants. After pulling the pants to the waist, fasten the fly closure securely. See **(FIG. 5A)**. Cinch take-up straps, if present, so the pants are snug at your waist. Pull the suspenders over your shoulders and adjust them so that the crotch of the pants is comfortably secure against your crotch. Pants that hang down too low in the crotch will dangerously restrict your mobility and will wear out prematurely in the crotch seams or in the fabrics of the barrier layer. When properly fitted, and correctly donned, the cuffs of your pants should be no less than 2" and not more than 5" off the floor. Step into your protective footwear, and if they are adjustable, zip them up or tie the laces. Tighten the pants cuffs by adjusting the take-up straps.

#### 7.2 COAT

Pull the coat onto your body. See **(FIG. 5B)**. Secure your hands through the sleeve cuffs. Tighten coat cuffs by using the take-up straps. See **(FIG. 5C)**. Zip up the front closure all the way to the neck, and secure the stormflap (if present).

#### 7.3 SECURING THE COMPLETE PROTECTIVE ENSEMBLE

Don your helmet, technical rescue gloves and make sure that your footwear is fastened properly. Raise the collar up and secure the hook and pile fastener and throat strap to protect your neck.

## 7.4 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 that all closures are secured properly.**

## 7.5 DOFFING (REMOVING) YOUR GARMENT

- A. First, never remove your Garments until you are certain that you are safely removed from the hazard area. Always wear your full ensemble during all phases of Technical Rescue and/or EMS operations.
- B. After a strenuous emergency operation is completed, and you are in a safe area, it is important to ventilate your body as quickly as possible in order to cool down. You should open the front of the coat to allow cool air to penetrate.
- C. When you are ready to remove your Garments, you should first remove your gloves and helmet.
- D. Next, begin to remove your Garments. Remove the coat first. Loosen the take-up straps at the waist and on the coat and pants cuffs. Next, disengage the fly closure on trousers and remove them.
- E. If your Garments are contaminated with hazardous chemicals, you should remove them, carefully avoiding any contact with contaminated parts. Hose the Garments down at the scene. Be sure to place the Garments in plastic bags to allow safe handling by laundry personnel. A Garment exposed to body fluids can be washed and disinfected to reduce the risk of exposure to bloodborne pathogens. See Washing, Decontamination and Disinfecting Procedures in Section 11 of this Guide.
- F. During and after doffing, always look for signs of chemicals, body fluids or other contamination and for signs of wear or damage. See Washing, Decontamination and Disinfecting Procedures, Section 11, and Inspection Procedures, Section 6 of this Guide.

## ⚠ **WARNING**

Technical Rescue and/or EMS personnel who are taller than 5'8" **MUST** wear a coat that is 32 inches or GREATER from the back of the neck at the collar down the back to the bottom of the coat hem. Wearing a coat with inadequate overlap could result in serious injury. If you have questions about whether your Garments have the adequate overlap, contact your nearest LION dealer.



FIG. 6A  
NFPA Position A



FIG. 6B  
NFPA Position B

## 8. COMPATIBILITY AND PROPER FIT

### 8.1 OVERLAP

You must make sure that there is adequate overlap between the coat and the trousers, including the outer shell and the barrier layer, before using the Garments. You will need the assistance of a partner to check these key areas.

#### Your Height Affects Overlap

Technical Rescue and/or EMS personnel who are taller than 5'8" **MUST** wear a coat that is 32 inches or GREATER from the back of the neck at the collar down the back to the bottom of the coat hem. Special care should be given to long-bodied Technical Rescue and/or EMS personnel of any size to ensure that adequate overlap is provided.

To check overlap, the following tests should be performed while wearing your complete protective ensemble:

A. NFPA 1500 Standard Position A (**FIG. 6A**). While standing, reach over head as high as possible with your hands together. The inner liner of the coat must overlap the top of the trousers by no less than 2 inches (5 cm).

B. NFPA 1500 Standard Position B (**FIG. 6B**). While standing with your hands together and reaching overhead as far as possible, bend forward to a 90° angle, to the left or right and backward. The inner liner of the coat must overlap the top of the trousers by no less than 2 inches (5 cm).

C. The lower edges of your trousers must overlap the tops of your boots by 4-6 inches (10-15 cm). Gloves and wristlets must overlap each other by 3 inches (7.5 cm) and leave no gaps where wrists might be exposed.

### 8.2 CHECKING PROPER FIT

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



### 8.3 CHECKING THE SIZE

Coat. The chest size shown for a coat should NEVER be smaller than the circumference of your own chest, measured under your arms. Coats are designed with an eight inch (8") overage for better fit over clothing. For example, a coat that fits someone with a 44" chest will be labeled as size 44 and measure approximately 52". The end of the sleeve should reach beyond your wrist when arms are at rest.

Trousers. The waist size shown for a pair of trousers should NEVER be smaller than the circumference of your own waist, measured at your navel. The actual waist dimension of the trousers should be approximately two inches (2") larger than the waist size ordered and labeled on the trousers. Make sure the lower edges of your trousers overlap the tops of your footwear by four to six inches (4"-6").

If the garment does not seem to fit properly, you should check the size in the label to make sure it is your size as measured, and to make sure it is your 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 severe burns, cuts or abrasions, or dangerously restrict your ability to avoid injuries in an emergency situation.

## 9. MARKING CONSIDERATIONS

For marking an individual's name, or other identifying mark, an indelible laundry marker may be used. LION recommends marking the Garment in the following manner:

- 9.1 First, check the Garment Information Label (it has a barcode on it) to determine whether adequate identifying information was already printed by the manufacturer. If not, the under side of the coat's storm flap or under the facings at the coat front are well-protected places for individual markings. The underside of the facing at the trousers fly is also recommended.
- 9.2 Do not apply letters, emblems, trim and/or other types of identification that may penetrate the barrier layer. Do not write on the barrier layer or the substrate textile of the barrier layer. Indelible inks could damage the film or coating.

**NEVER MARK ON THE SAFETY, CLEANING OR INFORMATION LABELS ON YOUR GARMENT!**

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

The Garment is designed in compliance with both NFPA 1951 and NFPA 1999 to protect the user against specific hazards associated with operations involving the rescue of persons from collapsed buildings, automobile accidents, trench or cave-in rescue, confined space emergencies or rope rescue along with the specific hazards associated with the assessment, stabilization and treatment of persons in pre-hospital emergency situations. This section indicates the hazards associated with these activities and specific warnings concerning the proper safe usage of your Technical Rescue/EMS Garment.

Always use this 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 and Health 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 Health Care Workers from Occupational Exposure to Blood-Borne Pathogens"

### 10.1 PREPARATION

Before beginning any Technical Rescue and/or EMS emergency operation, your Garments should be donned according to the procedures in Section 7 of this Guide and checked by a partner for proper interface.

#### **DANGER**

Always clean and thoroughly dry Garments used in any Technical Rescue and/or EMS operation. Soiled or contaminated Garments may be combustible, causing serious burns to the wearer if exposed to a flash fire.

### 10.2 BURN HAZARDS

There are three types of heat transfer: 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.

### 10.3 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 NFPA 1951 Standard is based on the knowledge that the hazard of flash fires may be present at Technical Rescue operations. Your Garment provides minimal protection against heat and flame from flash fires. The materials are tested to provide limited flame and heat resistance.

#### **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 even while wearing this Technical Rescue/EMS Garment, and without sustaining damage to the Garment. If you sense combustible gases or debris in the area, you should escape to a safe area until the dangerous condition has been eliminated.

## 10.4 BURNS

Burns are a function of time and temperature. The higher the temperature of the heat source and the longer the exposure time, the greater the severity of burns.

**FIRST DEGREE BURNS** begin when the temperature of skin reaches **118° F.**

**SECOND DEGREE BURNS** occur when the skin reaches approximately **131° F.**

**THIRD DEGREE BURNS** occur when skin temperature reaches approximately **152° F.**

**Minimal protection against conductive burns:** You can be burned by conductive heat when you contact heated surfaces or objects. Your Technical Rescue/EMS garment does not include a thermal liner, and therefore the Garment provides only minimal protection from conductive burns. It is critical to avoid contact with any hot surfaces while wearing the Technical Rescue/EMS garment.

**Minimal protection against convection burns:** Convected heat travels through the air, even if there is no immediate appearance of fire. However, convected heat can elevate the temperature of your Garment enough to cause a conductive heat burn when the fabric comes into contact with your skin. Your Garment does not have a thermal liner. Therefore, it should not be used in situations of high temperature.



Compression against hot surfaces can cause burns

### **DANGER**

This NFPA 1951/NFPA 1999 Dual-Certified Technical Rescue/EMS Garment does NOT include a thermal barrier for insulation against heat. To prevent being burned, you must avoid wearing this Technical Rescue/EMS Garment in high temperature environments and avoid contact with any hot surfaces.



Radiant heat from hot surfaces can cause burns

### **DANGER**

You must only use Technical Rescue/EMS garments in environments where no structural fire is present. In rescue situations where fire is present, responders must only wear NFPA 1971 compliant structural firefighter clothing.

### **DANGER**

The buildup of heat in Garments can lead to burns without any sign of damage to the Garment. Never wait for signs of Garment damage to warn of imminent burns. Always be aware of your surrounding environment and be ready to escape if you begin to feel tingling or burning sensations.

### **DANGER**

Technical Rescue and/or EMS personnel who are exposed to a flashover, backdraft or other flame and high heat environments are at **EXTREME** risk for extensive burn injuries and death even while wearing your NFPA 1951/NFPA 1999 Dual-Certified Garment!

## **DANGER**

If you are unavoidably exposed to high temperatures during a Technical Rescue and/or EMS activity, you need to be constantly aware of the buildup of heat in the surrounding environment and in your Garments and be ready to escape to a cool area where you can remove hot Garments quickly to avoid burns.

## **WARNING**

Do not confuse the component testing requirements that are part of NFPA Standards with the conditions in which Technical Rescue and/or EMS personnel work. For example, the requirement that certain components must not melt, drip, or separate when exposed to convected heat temperatures of 500° F for 5 minutes is in no way intended to indicate that Technical Rescue and/or EMS personnel face that condition in their work, or could be expected to withstand that condition **EVEN WHILE WEARING NFPA 1951/NFPA 1999 Dual-Certified GARMENTS CORRECTLY** without suffering serious injury or death.

### **10.5 HEAT STRESS: A SIGNIFICANT CAUSE OF RESPONDER 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 that more blood can be moved to the skin surface. Blood vessels near the skin dilate so that 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 that evaporates off the skin to provide cooling. Those natural responses do not work very well for any or all of the following conditions: the ambient air temperature is at least 75° F (23.9° C) 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 the body temperature gets elevated too high, the results can be heat strain, heat exhaustion, or heat stroke.

## **WARNING**

Overexertion in hot conditions while wearing Garments 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 and clammy. If you feel symptoms, get to a cool place, remove your Garments 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 sometimes mental confusion. If you feel any of the above symptoms at any time, get to a cool area immediately, remove your Garments, 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.

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

During Technical Rescue and/or EMS operations, the heart beats 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 user's 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.



## **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 heart attack.

### 10.7 LIQUID PENETRATION AND HAZARDOUS MATERIALS

#### **LIMITED Protection against liquid penetration from 6 common chemicals**

Your Garment's barrier layer is tested for resistance against penetration from liquid splash by only six common chemicals after 1 hour exposures. These chemicals are 1. AFFF, 2. battery acid, 3. hydraulic fluid, 4. surrogate gasoline, 5. swimming pool chlorine (65% free chlorine solution) and 6. automobile antifreeze. These liquids are tested because they are considered to be the most common chemicals encountered in Technical Rescue and/or EMS operations. The purpose of the Garment is to provide limited protection against incidental contact with these materials encountered during routine operations.

## **WARNING**

Over time, as the garment is worn and ages, the barrier layer's protection against penetration of the 6 common fireground chemicals listed in this section will become more limited. See Section 15 of this Guide on Useful life. See also NFPA 1951.

#### **This Garment provides no Protection Against Hazardous Materials Exposure**

In addition, responders face potential exposure to an almost unlimited number of other potentially hazardous chemicals in their operations. Your Garment is NOT designed to protect against exposures to hazardous material operations. **You MUST use appropriate protective equipment in situations involving CBRN liquid or vapor hazardous materials.**

## **WARNING**

If you experience accidental or incidental exposure to a hazardous material, you need to follow the precautions in Section 11 of this Guide regarding Washing and Decontamination, in order to limit exposure to yourself and others.

## 10.8 ELECTROCUTION

### **WARNING**

Your Garment is NOT designed to protect you against electrocution. When entering a rescue site, you should NEVER touch live wiring, especially if your Garment is wet. Never allow equipment you are operating to contact live wiring.

## 10.9 BLOODBORNE PATHOGENS

With the barrier layer in place, your Garment is designed to protect your body from the hazards of exposure to bloodborne pathogens present in body fluids. Exposure incidents are specific contact of the following with blood or OPIM (Other Potentially Infection Materials): eye; mouth or other mucous membranes; non-intact skin; or parenteral contact. Make sure face, mouth, eyes, nose and non-intact skin are covered. Avoid contact with sharps. Use Body Substance Isolation Procedures when handling Garments exposed to body fluids. Washing Garments according to the Procedures in Section 11 of this Guide will generally eliminate hazards of exposure to body fluids arising from incidental contact. For heavier levels of exposure, disinfecting Garments will substantially reduce hazards arising from exposure of Garments to potentially hazardous body fluids. See Section 11 of this Guide for more information.

## 10.10 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; and
- The addition of accessories that are not approved by LION as compatible with the Garments. If you have questions about whether accessories will degrade the performance of your Garment below the NFPA 1951 or NFPA 1999 Standard, 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 on the job. These substances can contaminate your Garments, and cause harm to you after your body contacts your Garments. This section tells you how to wash and decontaminate your Garments to reduce these hazards.

Routine Technical Rescue and/or EMS Contaminants: Technical Rescue and/or EMS incidents may involve rescue after a structure collapse. Many construction materials, including asbestos, are also hazardous. These substances can become embedded in the fibers of your Garments, penetrate inner layers and enter the body through absorption, inhalation, parenterally and ingestion. In addition, particulates and other products of combustion can reduce the flame resistance of your Garments and increase your Garments' ability to conduct electricity. To reduce the risk of long-term harm from hazardous substances present in the products of fire combustion, construction materials, or hazardous chemicals, you **MUST** wash your Garments.

Hazardous Chemicals: If you experience accidental or incidental exposure to a hazardous chemical, follow all precautions in this section to limit exposure and risk of harm to yourself and others.

You should hose down contaminated Garments at the scene to limit further exposure to hazardous chemicals, to reduce exposure to others and to prevent chemicals from settling into your Garments.

### **DANGER**

Always clean and thoroughly dry Garments used in any technical rescue or EMS operation.

### **WARNING**

To reduce the risk of harm from hazardous substances present in the products of fire combustion, or hazardous chemicals, you **MUST** wash your Garments.

### **WARNING**

Decontamination of protective clothing and equipment is a complicated process for which there is no guarantee that protective elements are free from contamination. While the purpose of decontamination is to remove all contaminant(s) from the element, decontamination procedures or cleaning processes are not always 100% effective in removing all contamination. See NFPA 1855.

Bloodborne Pathogens: Your Garments may be exposed to body fluids that may contain bloodborne pathogens. The washing procedures described later in this section will reduce your risk of infection from these hazards.

## 11.2 FREQUENCY

Clean Garments at least annually or as soon as as possible after exposure to products of combustion, as well as contamination or exposure to smoke, blood or body fluids, or hazardous substances.

### **WARNING**

Always wash your Garments separately from other items. Never wash your Garments at home or at public laundry facilities to avoid the spread of chemical contamination or hazardous combustion products to other laundry.

### **WARNING**

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



StationCare 1851 is available online at [www.lionprotects.com/totalcare](http://www.lionprotects.com/totalcare).

Contact LION or a LION TotalCare® Center for additional information about the compatibility of cleaning products with protective clothing.



no chlorine bleach

### 11.3 CLEANING PRODUCTS

Routine Washing:

- Commercially available detergents. Use commercially available detergents with a pH greater than 6.0 and less than 10.5. Many household detergents fall within this range.
- Specialty Cleaners. StationCare 1851 from LION TotalCare® is designed for NFPA 1951/NFPA 1999 Garments. Always read MSDS sheets before use.
- Spot cleaning and pre-treating. Use commercially available cleaning products with a pH greater than 6.0 and less than 10.5. Many household cleaning products fall within this range. Always check MSDS and product's instructions before use.

#### **WARNING**

Never use chlorine bleach or chlorinated products to clean your Garments. Even small amounts of chlorine will seriously reduce your Garment's protective qualities. Non-chlorinated bleaches are acceptable.

### 11.4 SPOT CLEANING

- Use a cleaning product that is safe for use on protective clothing fabrics to clean light spots and stains on Garments.
- Apply the cleaner one or two times on soiled areas according to the cleaning product's instructions on dilution and application. See Section 11.3 for guidelines on cleaning products.
- For outer shells only, use a soft bristle brush (toothbrush or fingernail-type brush dipped in water) to gently scrub the soiled area for 1 or 2 minutes. For inner liner materials, gently rub the fabrics together.
- Thoroughly and carefully rinse Garment with cool water.

#### **WARNING**

Do not use petroleum-based solvents to spot clean. These products may reduce the limited protective qualities of the Garment.

### 11.5 PRETREATING

- Apply pretreating product onto the soiled areas according to the pretreating product's instructions on dilution and application.
- Thoroughly and carefully rinse the Garment with cool water.
- Place Garment into washing machine and follow the wash procedures in this section.

### 11.6 HEAVILY SOILED AREAS

- Air dry Garment before applying cleaning product.
- Saturate the heavily soiled and surrounding area according to the cleaning product's instructions on dilution and application. Follow the cleaning product instructions for duration of soaking.
- For outer shells only, use a soft bristle brush (toothbrush or fingernail-type brush dipped in water) to gently scrub the soiled area for 1 or 2 minutes. For inner liner materials, gently rub the fabrics together.
- Thoroughly and carefully rinse Garment with cool water.
- Repeat steps B-D if necessary.
- Place Garment into the washing machine as instructed in the wash procedures in this section.



## 11.7 MACHINE WASHING

### Preparation

Before washing, make sure you comply with all federal, state and local guidelines for handling effluents from utility sinks. Remove ancillary items such as suspenders, removable belts or any other detachable items. ALWAYS wash shells, liners and suspenders separately to avoid redepositing soil from one component to the other.

- A. Detach outer shells from the inner liners. Remove suspenders. Hold the pants suspender button when removing suspender clips to extend the wearlife of the suspender button. Twist snaps to loosen when removing the liner system to extend their wearlife.
- B. Hand wash suspenders with a mild detergent and soft bristle brush, rinse thoroughly and hang the suspenders to air dry AWAY FROM DIRECT OR INDIRECT SUNLIGHT, FLUORESCENT LIGHT OR SHARP OBJECTS. See Section 11.3 for guidelines on cleaning products.
- C. Pretreat heavily soiled Garments following steps in the Spot cleaning and Pretreating procedures, in Sections 11.4-11.6 of this Guide.
- D. Where provided, fasten all hooks and dees or other metal parts and turn the Garment inside out or place in a large laundry bag that can be tied shut to avoid damage to the Garment or to the wash tub.
- E. Fasten all hook and loop closures to each other to reduce the likelihood of damage to delicate parts of your Garments.
- F. Wash shells and liners separately to avoid possible damage to the liner caused by hardware and to avoid cross contamination.

### **Machine Settings**

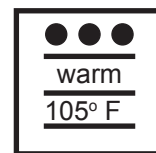
Use a front loading extractor or front loading washing machine with a tumbling action for washing. Do not use a top-loading machine, because it will not wash your Garments as thoroughly and the agitator may damage the Garment and reduce its durability and protective value.

Use the following machine settings:

- A. Wash temperature should not exceed 105° F (40° C).
- B. Normal Cycle.
- C. Use low extractor speeds less than 100 g's.
- D. Double Rinse Double rinsing removes residual dirt and insures detergent removal. If your machine will not automatically double rinse, a complete second rinse cycle should be run without adding detergent.

### **Wash Procedures**

- A. Load machine with Garments to be washed. Follow machine manufacturer's instructions for proper load size. Overloading the machine can lead to incomplete cleaning and other poor cleaning results.
- B. 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 amount of cleaning product. See Section 11.3 for guidelines on cleaning products.
- C. Set washing machine on normal cycle and start the wash cycle.



water  
temperature



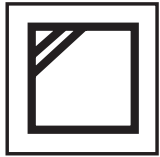
machine  
wash cycle



no chlorine  
bleach



line dry/  
hang to dry



in the shade



never  
tumble dry



never  
dry-clean

### **⚠ WARNING**

Never Dry-Clean your Garment.  
Many Garment components will not function if dry-cleaned.

### **⚠ WARNING**

Only a trained expert in decontamination should attempt to decontaminate Garments. Contact a LION TotalCare® Center or verified ISP to seek assistance in determining whether decontamination is possible, and the name of the appropriate organization to perform decontamination.

## **11.8 DRYING**

- A. Remove Garments from washing machine, and if they are not already inside out from washing, turn them inside out to expose the inner surfaces. Dry by hanging in a shaded area that receives good cross ventilation or use a fan to circulate the air.
- B. Do not use automatic dryers because the mechanical action and excessive heat may damage or shrink your Garments.

### **⚠ WARNING**

Do not hang Garments 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 Garments.

## **11.9 DO NOT DRY CLEAN**

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

## **11.10 CONTRACT CLEANING**

LION recommends that only a LION TotalCare® Center or a verified ISP be used for contract cleaning.

## **11.11 HAND WASHING IN A UTILITY SINK**

LION does **NOT RECOMMEND** this method for washing your Garments. However, if no other options are available, hand washing is preferable to no washing.

**Preparation:** Before washing, make sure you comply with all federal, state and local guidelines for handling effluents from utility sinks. Wear rubber gloves to protect against exposure to contaminants. Detach inner liner from outer shell as indicated in the machine washing instructions.

**Cleaning Products:** Use same cleaning products as used for machine washing.

**Procedures:** Make sure water temperature does not exceed 105° F (40° C). Using a hand brush, gently scrub surfaces of inner liner and outer shell. Overscrubbing may damage your Garment's materials or reduce its useful life.

**Drying:** See Section 11.8 for drying procedure.

## **11.12 DO NOT BRUSH WASH ON FLOOR OF STATION**

LION does **NOT RECOMMEND** brush washing your Garment on the floor of the station because this method is not effective and may damage it.

## **11.13 DECONTAMINATION AND DISINFECTION**

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

### **⚠ WARNING**

To reduce risk of harm from hazardous substances present in products of fire combustion, hazardous chemicals and body fluids, you **MUST** wash, decontaminate and/or disinfect your Garments after each exposure to such hazardous substances.

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

**A. Hazardous Substances Present in the Products of Fire Combustion (Soot, Smoke and Debris).**

To reduce the risks associated with exposure to the hazardous substances found in the products of fire combustion, you **MUST** wash, dry and store your garments according to the procedures in this section.

**B. Hazardous Chemicals**

1. Hose down contaminated Garments at the scene to limit further exposure to hazardous chemicals, to limit exposure to others and to limit chemicals from settling into your Garments.
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 or verified ISP to determine the feasibility of decontamination.
3. **UNKNOWN MATERIALS:** If the contaminant is not known, Garments should remain out of service until the materials are identified. Always demand MSDS information and be prepared to share your findings with the LION TotalCare® Center or a verified ISP to decontaminate the Garments. **If your Garment cannot be decontaminated, it must be retired and disposed of in accordance with federal, state and local regulations.**

**C. Blood and Body Fluids**

1. **Disinfecting Products.** You must use disinfectants that are compatible with NFPA 1951/NFPA 1999 Compliant Garments.
2. **Disinfecting Procedure for Blood and Body Fluids**

**Small incidental areas:** Use spot cleaning procedures described in Section 11.4, and use an appropriate disinfectant available for Garments. Always follow the instructions of the manufacturer regarding product usage. Wash Garments thoroughly after spot cleaning in accordance with procedures in this section.

**Large areas:** If Garments have large areas of coverage of blood or body fluids, place and transport Garments in bags to prevent leakage. Contact a LION TotalCare® Center or a verified ISP to arrange for disinfection.

If you have questions concerning the use of a particular disinfectant, contact LION, a LION TotalCare® Center or verified ISP.

**! 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.

**11.14 LAUNDRY SAFETY**

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 sharp objects. Your Fire Department should have a Bloodborne Pathogens Written Exposure Control Plan. Part of this plan is decontamination, disinfection and washing of Garments, and it should include LAUNDRY ROOM SAFETY PROCEDURES and HOUSEKEEPING SAFETY PROCEDURES. You should follow all appropriate federal, state, and local regulations.



**FIG. 7A**



**FIG. 7B**

## 12. REASSEMBLY

Your Garment was completely assembled at the factory with an outer shell and liner. However, you may wish to separate your shell and liner for inspection, washing, decontamination or repairs. This section tells you how to put your Garment back together.

### 12.1 COATS

- A. Start with coat shell and liner separated.
- B. Orient the coat exterior side down so that the inner surface of the shell is facing you. Attach the liner at the coat shell collar using the hook and loop along the facings. **(FIG. 7A)**
- C. Insert liner sleeves into shell, carefully avoiding any twisting or bunching. **(FIG. 7B)**
- D. Fasten the wrists of the liner to the wrists of the shell using the snaps on the shell and liner.
- E. Fasten the left and right fronts of the liner hook and loop to their counterparts in the coat's left and right front facings.
- F. Try on coat to check for comfort and proper fit.

### 12.2 PANTS

- A. Start with the pants shell and liner separated.
- B. Insert liner legs into shell, carefully avoiding any twisting or bunching of the legs or torso.
- C. Fasten the waist of the liner to the waist of the shell using the snaps. Fasten the fly of the liner to the shell using the hook and loop.
- D. Fasten the cuffs of the liner to the cuffs of the shell with the guide snaps.
- E. Try on pants to check for comfort and proper fit.

## 13. REPAIRS

To inquire on whether a damaged Garment, including its outer shell, liner or other component, may be repairable, contact a LION TotalCare® Center or verified ISP. REPAIRS SHOULD ONLY BE MADE BY LION TOTALCARE® OR BY A VERIFIED ISP.

### **⚠ WARNING**

Before any repairs are made to your Garment, it must be washed, decontaminated and disinfected in accordance with this Guide. It is a violation of OSHA guidelines to expect workers to alter or repair soiled and possibly contaminated or infected Garments.

All repairs should be done by LION TotalCare® Centers or a verified ISP. Repairs made to garments by unlisted companies may invalidate all warranties and may expose the wearer to hazardous or life threatening conditions. For a list of LION TotalCare® Centers, visit [www.lionprotects.com/totalcare-locations](http://www.lionprotects.com/totalcare-locations). Call LION at (800) 421-2926 for an updated list of verified ISPs.

## 14. STORAGE

Between incidents, and for longer-term storage, hang your Garments in a dry location out of light and away from sharp objects that may cause tears or snags in the fabric.

Use fans to provide good ventilation to dry Garments that may have absorbed water or sweat after an incident, and to assist in the removal of contaminants that may not have been removed by washing.

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 fabrics and barrier layer materials.

Always wash and dry your Garments in accordance with Section 11 of this Guide and before hanging in long-term storage. Garments should be stored at temperatures between 25° F and 180° F.

### **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 15 of this Guide for limitations on useful life.

### **WARNING**

**NEVER STORE YOUR GARMENT IN DIRECT SUNLIGHT, INDIRECT SUNLIGHT, OR IN FLUORESCENT LIGHT (FIG. 8).** 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 17 of this Guide.)

### **CAUTION**

Do not store your Garments in contact with contaminants such as oils, solvents, acids or alkalis as these can damage the garment.

### **CAUTION**

Do not store Garments in air tight containers unless the Garments are new and have not been issued.

### **CAUTION**

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



**FIG. 8**  
Never store your Garments in direct sunlight, indirect sunlight or in fluorescent light.

## 15. RETIREMENT

### 15.1 USEFUL LIFE AND RETIREMENT

#### HOW LONG IS USEFUL LIFE?

- The period of time that NFPA 1951/1999 Dual-Certified Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life of Garments can be as little as 3 to 5 years with heavy wear and tear and improper maintenance and/or storage.
- Useful life can be as long as 7 to 10 years if Garments have been subject to relatively lower levels of wear and tear and have been consistently maintained in a regular cleaning and maintenance program and stored properly.

NFPA 1951 and NFPA 1999 performance requirements are based on new, unworn Garments and Composites. Useful life is the period of time that NFPA 1951/1999 Dual-Certified Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life of Garments can be as little as 3 to 5 years with heavy wear and tear and improper maintenance and/or storage. Useful life can be as long as 7 to 10 years if Garments have been subject to relatively lower levels of wear and tear and have been consistently maintained in a regular cleaning and maintenance program and stored properly. In compliance with NFPA 1855, Garments or Garment elements must be retired no more than 10 years from the date of manufacture.

The useful life of a Garment will vary according to the following factors:

- Weight and type of weave of fabric
- Age and frequency of use
- Number and type of previous repairs
- Type of work the wearer performed
- The length of exposure to flash fire, and the intensity of the heat
- The length of exposure to hazardous chemicals
- The length of exposure to direct or indirect sunlight, or other light sources such as fluorescent light
- Condition of the barrier layer
- Garments more than 7 years old

Your Garments should be assessed by trained professionals at each regular Advanced Inspection to determine whether they have exceeded their useful life and must be retired. Your Garments must be removed from service when they can no longer be safely used, and when the cost of repair would exceed 50% of the cost of replacement.

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 Technical Rescue and/or EMS operation! Contact a trained expert within your department, LION, a LION TotalCare® Center or a verified ISP.

### 15.2 OUTER SHELL COLOR OR SHADE CHANGES

Some outer shell materials may experience color or shade changes during their useful life as a result of washing and/or use during technical rescue or EMS operations. These outer shell shade changes do not affect the protective properties of the shell fabrics.

#### CAUTION

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



## 16. DISPOSAL

### 15.1 DISPOSAL

Retired uncontaminated Garments must be destroyed to prevent their unauthorized or mistaken use. Cut the uncontaminated, retired Garments into several pieces and dispose of properly. One suggested method of disposal is a landfill.

Retired Garments that are contaminated with blood or body fluids or hazardous chemicals should be placed in a plastic bag and properly disposed of. You should follow federal, state and local regulations governing disposal of contaminated materials.



#### **WARNING**

Never use retired Garments for training purposes. Use of retired Garments in hazardous situations could result in serious injury or death.

## 17. LIMITED WARRANTY INFORMATION

### HOW LONG IS USEFUL LIFE?

- The period of time that NFPA 1951/1999 Dual-Certified Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life of Garments can be as little as 3 to 5 years with heavy wear and tear and improper maintenance and/or storage.
- Useful life can be as long as 7 to 10 years if Garments have been subject to relatively lower levels of wear and tear and have been consistently maintained in a regular cleaning and maintenance program and stored properly!

LION warrants that its firefighter and emergency responder products meet all applicable NFPA standards in effect at the time of their manufacture and further warrants that such products are free from any defect in workmanship or any patent 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 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 LION agrees to be defective as covered by this warranty and is returned.

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:** The period of time that NFPA 1951/1999 Dual-Certified Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life can be as long as 7 to 10 years if Garments have been subject to relatively lower levels of wear and tear and have been consistently maintained in a regular cleaning and

maintenance program and stored properly. Useful life of Garments can be as little as 3 to 5 years with heavy wear and tear and improper maintenance and/or storage. In compliance with NFPA 1855, Garments or Garment elements must be retired no more than 10 years from the date of manufacture. A Garment should be retired when the costs of repair would exceed 50% of the replacement cost

**DEFECTS IN WORKMANSHIP AND MATERIALS:** Defects in Workmanship and Materials means poorly manufactured items, including 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 products 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 washing;
- D. Color loss due to abrasion (creases, folds, pleats, edges, collar points, etc.);
- E. Damage caused by improper washing, decontamination, disinfection 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.

**NOTES:**

## NOTES:

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: Routine or Advanced Inspection; Routine or Advanced 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 \_\_\_\_\_

Earn your LION  
NFPA 1500 PPE Safety  
and Use Certificate



### PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Services Association, Inc.  
P.O. Box 147, Lynnfield, MA 01940 [www.FEMSA.org](http://www.FEMSA.org)

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