

USER INSTRUCTION, SAFETY AND TRAINING GUIDE



⚠ DANGER

- This Guide should be removed only by the end user! In the event this Guide becomes detached from the Garment, turn this Guide in to the authorities responsible for the care and maintenance of the Garment.
- **You MUST read this Guide and all Garment Safety, Cleaning, and Information labels before wearing.**
- Skin burns occur when skin reaches a temperature of 118 degrees F.
- Fire burns at temperatures up to 2000 degrees F or higher.
- This Garment provides limited protection against flash fire, 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 FIRE FIGHTING OPERATIONS.**

**Lion
Apparel
DUAL
CERTIFIED
NFPA 1951/
NFPA 1999
Compliant
Garment for
USAR and
Emergency
Medical
Operations**

Lion RescueWear

- Tactix® TR51 Coats and Pants with two-layer structure (removable moisture barrier/inner liner)
- Tactix® TR51 Coats and Pants with single-layer structure (trilaminate of outer shell, moisture barrier, and face cloth)

IMPORTANT!

You must register the warranty on your garment.

Go to
www.lionrescuewear.bz/warranty.html



Protective Systems Group

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P.O. BOX 13576

DAYTON, OHIO

45413-0576

July, 2005


⚠ 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.

5983

- Wear this garment ONLY FOR SEARCH, RESCUE, RECOVERY, AND SITE STABILIZATION AT USAR OPERATIONS 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 wash, 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 USAR search, rescue, recovery and site stabilization techniques, and only if you have been properly trained in emergency medical operations and have knowledge of the proper selection, fit, use, care and limitations of protective clothing and equipment.
- To obtain a free user guide, write Lion Apparel
@P.O. Box 13576, Dayton, OH 45413-0576 or download
@<http://www.lionapparel.com/guide.html>, or call 1-800-421-2926.
- **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.
 - **Moisture and/or compression in your garment may reduce protection.**
 - Exertion in hot conditions may result in heat exhaustion or poor judgment. 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 1851.
- DO NOT REMOVE OR WRITE ON THIS LABEL!**

1. Garment Safety Label



LION
APPAREL
Protective Systems Group

5985


Questions, write or call immediately:
Lion Apparel, Protective Systems Group,
P.O. Box 13576 Dayton OH 45413. 1-800-421-2926

CLEANING AND STORAGE INSTRUCTIONS

- Users must clean, inspect, maintain, store and alter only in accordance with the User Instruction, Safety and Training Guide.
- Never use chlorine bleach. Chlorine bleach will significantly compromise the protection afforded by textile and 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. Outer shell and moisture barrier should be washed together.
- 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 USAR GARMENT MEETS THE GARMENT REQUIREMENTS OF NFPA 1951, STANDARD ON PROTECTIVE ENSEMBLE FOR USAR OPERATIONS 2001 EDITION. THIS EMS GARMENT MEETS THE EMERGENCY MEDICAL GARMENT REQUIREMENTS OF NFPA 1999, STANDARD ON PROTECTIVE CLOTHING FOR EMERGENCY MEDICAL OPERATIONS, 2003 EDITION.

DO NOT REMOVE THIS LABEL



PROTECTIVE ENSEMBLE FOR USAR OPERATIONS IN ACCORDANCE WITH NFPA 1951-2001. PROTECTIVE CLOTHING FOR EMERGENCY MEDICAL OPERATIONS IN ACCORDANCE WITH NFPA 1999-2003 3KF9

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. Cleaning Label

⚠ WARNING

FOR COMPLIANCE WITH THE GARMENT REQUIREMENTS OF NFPA 1951 AND NFPA 1999, THIS MOISTURE BARRIER COMPONENT MUST BE ATTACHED TO AN OUTER SHELL: OUTER SHELL 5.3 OZ MINIMUM WEIGHT

This moisture barrier component provides NO limited protection against heat, flame, 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!

5984



TACTIX

MILLENNIA SR
REQ: E108335
MFG DATE: 01/30/2004
CUT: 07344401001
MODEL: C5RM-32
LINER: C2N5CSR
SIZE: 4032R



0002971732

3. Liner Attachment Safety Label

4. Garment Information Label

Copies of labels used only in NFPA 1951 (2001 Edition) and NFPA 1999 (2003 Edition) Dual-Certified Garments

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1 INTRODUCTION

Congratulations on purchasing your new Lion Apparel product! Your NFPA 1951/ NFPA 1999 Dual-Certified Garment for Urban Search and Rescue and Emergency Medical Operations (referred to throughout this Guide as the “NFPA 1951/NFPA 1999 Dual-Certified Garment”, "USAR/EMS Garment", or “Garment”) is designed to provide limited protection against physical, environmental, flash fire, chemical splash, and bloodborne hazards to emergency responders involved in search, rescue, extrication, treatment, recovery, site stabilization, and other mitigation operations at or involving USAR 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 USAR Operations*, 2001 edition and *NFPA 1999 Standard on Protective Clothing for Emergency Medical Operations*, 2003 edition.

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. No one except you, the trained USAR and/or EMS responder, should remove this Guide from your NFPA 1951/ NFPA 1999 Dual-Certified Garment. Immediately upon receipt of your Garment, you should remove, carefully read, and save this Guide in a three-ring binder 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 USAR/EMS operations. Please take the time to read it.



This Guide will train you to:

- **Put on your Garment for safe usage**
- **Wear your Garment safely**
- **Inspect your Garment**
- **Repair your Garment**
- **Wash and Decontaminate your Garment**
- **Store your Garment**
- **Retire your Garment**

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

2 DEFINITIONS

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—The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

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

Bloodborne Pathogen—Pathogenic microorganisms that are present in human blood and can cause disease in humans. These include, but are not limited to: Hepatitis B, Hepatitis C, HIV and Syphilis.

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.

Chemical Agent—Any solid, liquid or gas mixture that can cause harm to the human body through respiration, ingestion, skin absorption, or contact.

Component—Any material, part or subassembly used in the construction of the NFPA 1951/NFPA 1999 Dual-Certified Garment.

Composite—The layer or combination of layers of the protective ensemble, or any elements of the protective ensemble, providing the required limited protection.

Emergency Medical Garment—An 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—Delivery of 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 devices designed and configured to provide limited physical 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 Fire Fighting—EXTRAORDINARILY specialized fire fighting 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 fire fighting 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.

Fluorescent Trim—Trim that absorbs and re-radiates light of certain wavelengths, making a surface highly visible to the human eye.

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 Urban Search and Rescue and Emergency Medical Operations, which include coats, trousers or coveralls. NFPA 1951/NFPA 1999 Dual-Certified Garments are NOT Structural, Entry or Proximity fire fighting 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 moisture barrier layer. The Inner Liner must ALWAYS be attached to the Outer Shell whenever the Garment is in service.

Interface Area–An area of the body where the protective garments, helmet, gloves, footwear, or SCBA 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.

Moisture Barrier–The portion of the Garment composite designed to prevent the transfer of liquids. For an NFPA 1999/NFPA 1951 Dual Certified Garment, this may be in the form of a separate *Inner Liner* layer or an integral layer laminated to a shell fabric (see *Trilaminate*) depending the particular Garment model.

MSDS–Acronym for Material Safety Data Sheets.

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 NFPA 1951/NFPA 1999 Dual-Certified Garment and 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 and 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 Clothing (EMS/USAR)–Multiple items of protective clothing, including garments, examination gloves, work gloves, cleaning gloves, footwear and footwear covers, and face protection devices designed and configured to provide limited physical 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, or during Urban Search and Rescue operations.



Protective Ensemble—Multiple elements of Garments and other equipment designed in accordance with the NFPA 1951 and NFPA 1999 standards to provide a limited degree of protection for USAR and/or EMS personnel from adverse exposures to the inherent risks of USAR and/or EMS operations. The elements of the protective ensemble are coats, trousers, coveralls, helmets, gloves, footwear, and interface components.

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 Fire Fighting—Specialized fire fighting 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 fire fighting and do not provide the required level of protection.

Recovery Operations—Those non emergency activities directed at retrieving property or the remains of victims.

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

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 Urban Search and Rescue and/or Emergency Medical Operations.

Retroreflective Trim—Trim material that reflects and returns a relatively high proportion of light in a direction close to the direction from which it came.

RPP (Radiant Protective Performance)—A test to determine the ability of an outer shell to withstand a measured amount of radiant heat.

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

SCBA—Acronym for Self-Contained Breathing Apparatus.

Search Operations—Any land-based operations involving the search for victims or body recovery.

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

Site Stabilization—Those activities directed at mitigating the dangerous elements of an emergency incident.

Structural Fire Fighting—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.

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

Trench/Excavation Functional Capability—The activity of removing a victim from a man-made cut, cavity, or depression in an earth surface, formed by earth removal.

Trilaminate—Three layers of fabric bonded together into a single layer. In NFPA 1951/NFPA 1999 Dual Certified Garments, it consists of an outer shell, a moisture barrier, and a backing material bonded to form a single layer.

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 moisture barrier 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 14 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.

Urban Search and Rescue Operations (USAR)—Those technical rescue incidents requiring at least one of the following: structural collapse functional capability, rope functional capability, confined space functional capability, trench/excavation functional capability, and vehicle/machinery functional capability, but not wilderness functional capability, water functional capability, or vehicle functional capability with any risk of fire involvement. The terms “Responder” or “Emergency Responder” used throughout this guide refer to emergency personnel involved in USAR operations.

USAR Ensemble—The combination or assembly of multiple elements that are individually compliant with the USAR requirements of this standard and that are designed to provide limited protection from the physical, environmental, thermal, flash fire, chemical splash, and bloodborne hazards encountered during USAR operations.

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



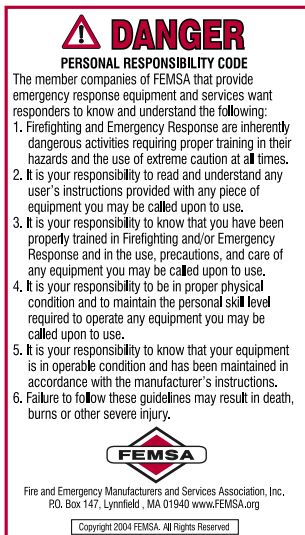


FIG. 1
Personal Responsibility Code
Also shown on back cover of this Guide.

3 SAFETY CHECKLIST

Do not use this NFPA 1951/NFPA 1999 Dual-Certified Garment until you have checked “YES” to the following:

1. Have you completed a formal training course in USAR and/or EMS techniques, the proper use of USAR 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 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 PROPER USE OF YOUR NFPA 1951/ NFPA 1999 DUAL CERTIFIED GARMENT

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 USAR AND/OR EMS INCIDENTS, INCLUDING:

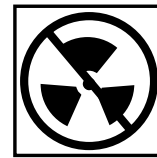
- flash fire,
- liquid splash of 5 common fire ground chemicals, including AFFF Foam, battery acid, hydraulic fluid, gasoline, 65% chlorine solution (See Section 10 of this Guide for more information),
- penetration of blood and other body fluids,
- environmental, including moisture and cold weather,
- physical hazards, including cuts and abrasion.



Do not use for ANY fire fighting.



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.

DANGER

DO NOT use this Garment for the following:

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

DANGER

USAR 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 USAR/EMS Garment!

Emergency responders can encounter many common liquids during normal performance of their duties. The reference to limited protection from liquid splash from 5 common fire ground 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.

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 USAR/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 USAR/EMS protective ensembles versus structural fire fighting protective ensembles can be dependent on the level of fire risk at the incident.

⚠ WARNING

Controlled lab tests in the NFPA 1951 Standard “cannot be deemed as establishing performance levels for all situations to which USAR and/or EMS personnel can be exposed”. You should always use extreme caution in any USAR and/or EMS incidents to avoid the risk of injuries. See NFPA 1951, Para. A.1-2.

⚠ WARNING

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**.

⚠ WARNING

You may have **very little or no warning time** from feeling heat or pain before skin begins to burn at 118 degrees F. 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

Protective properties in a new NFPA 1951/NFPA 1999 Dual-Certified 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. NFPA 1951, Para. A-1-2.2.

⚠ 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. KNOW YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENT: CONSTRUCTION, FEATURES, AND FUNCTION

In order to understand the limits of protection provided by your NFPA 1951/NFPA 1999 Dual-Certified Garment, you should study its construction, features, and function.

5.1 OVERVIEW

Your NFPA 1951/NFPA 1999 Dual-Certified Garment helps reduce health and safety risks to the USAR and/or EMS responder. It protects the responder because it is made of special heat and flame resistant textiles which when exposed to flash fire, 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 associated with flash fire. Third, the moisture barrier provides protection against liquid penetration from water from the outdoor environment or from chemical splash associated with the incident.

5.2 STRUCTURE

Depending on which Garment model you have, your Garment structure is one of the following:

- A. Two-layer structure: Your NFPA 1951/NFPA 1999 Dual-Certified Garment is made with two primary layers: an outer shell and a moisture barrier. The moisture barrier is removable for cleaning, inspection, and decontamination. Garments should NEVER be worn without the moisture barrier in place.

OR

- B. Single-layer structure: Your NFPA 1951/NFPA 1999 Dual-Certified Garment is made with one primary layer of the outer shell, moisture barrier, and backing material bonded together. In this case the moisture barrier is not removable.

5.3 OUTER SHELL

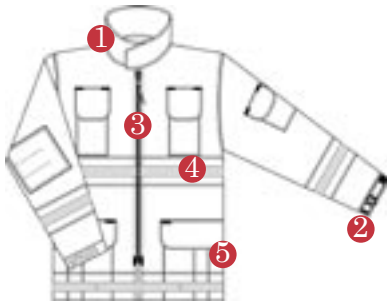
The outer shell is made of material with limited resistance to the effects of heat, flame, and abrasion. It also offers limited protection for the moisture barrier. The outer shell fabrics available from different textile and fiber manufacturers have varying useful life characteristics and color fast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



5.4 MOISTURE BARRIER

The moisture barrier 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 moisture barrier is bonded to a substrate and in some cases, also to the outer shell to give it strength and durability. All breathable moisture barriers 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 moisture barrier can either make up the inner liner or be incorporated into a trilaminate. If your Garment an inner liner, it should always be removed for washing, inspection, or decontamination and properly reinstalled before using your Garment.



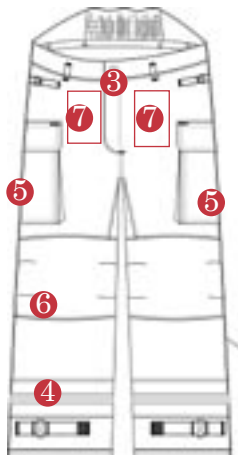
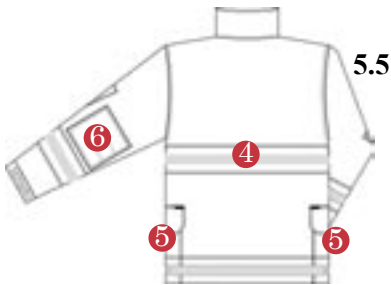
5.5 OTHER IMPORTANT SAFETY FEATURES (FIG. 2)

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 USAR and/or EMS activities.

Retroreflective and Fluorescent Trim: 4 Improves your visibility in low-light conditions.



⚠ 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.

FIG. 2
Key Elements of NFPA 1951/NFPA
1999 Dual-Certified Garments.

Pockets 5: located on coat and pants, provide storage for tools.

Reinforcements 6: Provide reinforcement at the knees and elbows against heat and flame, cuts and abrasion.

Labels 7: There are 3 important safety, cleaning, and information labels, all located on the inside of the inner liner of all coats, trousers, and coveralls. 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 Moisture Barrier Attachment Safety Label warns the user about the need to always wear the Garment with the outer shell and moisture barrier attached (on multi-layer garments).

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 INSPECTING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENT

6.1 PREPARATION

Read all labels first. There are three 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:

You should inspect your Garment at the following times: 1.) Upon receipt of your new Garment or replacement component; 2.) At least monthly thereafter during the useful life of the Garment; 3.) After exposure to heat, flames, chemicals; 4.) After exposure to body fluids (including blood); and 5.) After washing, repair or decontamination. You must inspect your Garment as a minimum, at the above frequency intervals to detect more obvious damage and deterioration. In addition, you might sense deficiencies in protection by feeling wet from rain or other liquids leaking through the moisture barrier materials or seams. Whenever you detect a potential problem through your own inspection, or suspect that the protective qualities might be degraded, your Garment should be inspected by a trained expert at the Fire Department or at a Lion Apparel Authorized Clean and Repair Center.

Advanced Inspection:

Your Garment should undergo a regular advanced inspection by an expert in the Fire Department trained by Lion Apparel or by a Lion Apparel Authorized Clean and Repair Center at least every 6 months, or whenever you have a question about whether a Garment is fit for use. For a list of Lion Apparel Authorized Clean and Repair Centers, please see the back of this Guide or call Lion Apparel at 1-800-421-2926.

6.3 INSPECTION PROCESS AND CRITERIA

1. Preparation for Inspection

- A. Place Garment on a clean surface in a brightly lighted area.
- B. If the Garment is a multi-layer construction with separable layers, separate the outer shell from the inner liner.

2. Inspecting the Moisture Barrier and Outer Shell Attachment System on a Multi-Layer Garment

- A. Locate the zipper, hook and loop, and/or snap attachments.
- B. Check any zippers for functionality and corrosion.
- C. Disconnect and examine snaps for corrosion and make sure their attachment to the sleeve/ankle is secure.
- D. Ensure all snaps function well.
- E. 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.

WARNING

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



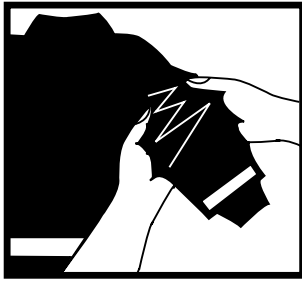


FIG. 3
Test fabric strength with thumbs

3. Inspecting the Outer Shell or the Outside Surface of a Trilaminate

- 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, it must be repaired if economically practical, the outer shell must be replaced if it is a separate layer, or the Garment should be retired and disposed of in accordance with Sections 14 and 15 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. zippers, hook and loop, and 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. 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 a Lion Apparel Authorized Clean and Repair Center 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 or are not deviant from the NFPA 1951/NFPA 1999 Standards.

- F. Stitching and Seams: Examine all seams for loose threads, breaks, skipped stitches, or weaknesses.
- G. Labels
 - a. Verify that all Safety, Cleaning, and Information labels are on the Garment. See p. 2 and Section 5.5 of this Guide.
 - b. Make sure that all Safety, Cleaning, and Information Labels are legible and securely attached to the Garment.

4. Routine Inspection of the Moisture Barrier in a Multi-Layer System or the Inside Surface of a Trilaminate

- A. Substrate or Backing: Examine for dirt, discoloration, thin spots, holes, tears, embrittlement, cracking, burns, abrasion, and worn spots.
 - a. Discoloration could be a sign of overexposure to light or heat. If an area appears to be weak, you should have a trained expert or a Lion Apparel Authorized Clean and Repair Center inspect it.
- B. Membrane: Inspect for any signs (holes, discoloration, rough spots, cracking, or tears) that could indicate damage or deterioration and leakage. (You will not be able to see the moisture barrier in a trilaminate.)
 - a. If you see or feel rough spots, cracks, or holes, or if you have experienced a wet inner liner or station uniform from rain or other exterior water sources, you should perform further leakage testing or have a trained expert or a Lion Apparel Authorized Clean and Repair Center perform hydrostatic testing.
- C. Stitching and Seams: Examine all seams for loose threads, loose tape, breaks, skipped stitches, or weaknesses.
- D. Labels:
 - a. Verify that all Safety, Cleaning, and Information Labels are on the Garment. See p. 2 and Section 5.5 of this Guide.
 - b. Make sure that all Safety, Cleaning, and Information Labels are legible and securely attached to the Garment.

5. Advanced Inspection of the Moisture Barrier in a Multi-Layer System or the Inside Surface of a Trilaminate

ONLY A TRAINED EXPERT in the Fire Department or at a Lion Apparel Authorized Clean and Repair Center should perform the following:

- A. Slide your hand across the film side of the moisture barrier (or the backing side of the trilaminate), checking for holes or places where your hand does not slide freely.



6. Moisture Barrier Field Evaluation Procedure

The following procedure may be performed in the field by a trained expert if the user believes that there is leakage and would like to determine the need for advanced inspection.



FIG. 4

A trained fire department expert should perform the field evaluation procedure on any area suspected of leaking moisture. The procedure should be performed at room temperature. The procedure utilizes an alcohol-water mixture of 1 part 70% isopropanol alcohol (rubbing alcohol) with 6 parts tap water.

The dry inner liner (or a section of the Garment if your Garment has a trilaminate structure) should be placed over a bucket with the substrate side facing down. Pour 1 cup (8 oz.) of the alcohol-water mixture into a cupped area of the moisture barrier. **(Fig. 4)** Allow to stand 3 minutes. If the liquid passes through, the moisture barrier has been damaged, or has worn out and the inner liner should be replaced and retired.

▲ WARNING

If during USAR and/or EMS operations, you perceive that water is passing through your moisture barrier from the outside, remove the Garment from service and have the Garment inspected by a Lion Apparel Authorized Clean and Repair Center. Passage of outside water through the liner means that the moisture barrier is damaged or deteriorated and must be replaced.

After this procedure the liner (or the Garment if your Garment has a trilaminate structure) must be washed and allowed to dry.

6.4 RECORDKEEPING

Lion Apparel Authorized Clean and Repair Centers offer recordkeeping services in compliance with NFPA 1851. For manual records, record all inspections and your results on the Inspection, Washing, 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.

7 DONNING & DOFFING: PUTTING ON AND REMOVING YOUR NFPA 1951/ NFPA 1999 DUAL CERTIFIED GARMENT

PREPARATION: Before donning, check to make sure that the inner liner (if your Garment is a model that has one) 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.

⚠ WARNING

NEVER wear the outer shell without installing the correct moisture barrier; NEVER wear the moisture barrier without attaching the correct outer shell to it. The outer shell and moisture barrier alone do not provide the limited protection against the hazards associated with USAR and/or EMS incidents. (Note: The outer shell and the moisture barrier are bonded together in Garments of trilaminate construction.)



FIG. 5A

7.1 TROUSERS

With the fly closure unfastened, hold open the trousers. After pulling the trousers to the waist, fasten the fly closure securely. See (Fig. 5A). Cinch take-up straps, if present, so the trousers are snug at your waist. Pull the suspenders (if present) over your shoulders and adjust them so that the crotch of the trousers is comfortably secure against your crotch. Trousers 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 moisture barrier layer. When properly fitted, and correctly donned, the cuffs of your trousers 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.



FIG. 5B

7.2 COAT

Pull the coat onto your body. See (Fig. 5B). Secure your hands through the sleeve cuffs. Tighten seals, if present, at the wrists by pulling the draw straps tight and locking them. See (Fig. 5C). Zip up the front closure all the way to the neck, and secure the stormflap (if present).



FIG. 5C

7.3 SECURING THE COMPLETE PROTECTIVE ENSEMBLE

- A. 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.
- B. Place helmet on your head, and use the chin strap to secure tightly to your head.
- C. Put on protective gloves and make sure that they securely overlap the sleeve cuffs.



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**. The lower edges of your trousers must overlap the tops of your footwear by 4-6 inches. Gloves and wristlets must overlap each other by 3 inches and leave no gaps where wrists might be exposed.

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 USAR 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, you begin to remove your Garments. Remove the coat first. 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.

8 CHECKING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENTS FOR 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 moisture barrier, before using the Garments. You will need the assistance of a fellow user to check these key areas.

Your Height Affects Overlap

USAR 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 USAR and/or EMS personnel of any size to ensure that adequate overlap is provided.

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 one inch (1") 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.

WARNING

USAR 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 Apparel dealer.

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 NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENT MARKING CONSIDERATIONS

For marking an individual's name, or other identifying mark, an indelible laundry marker may be used. Lion Apparel 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 moisture barrier. Do not write on the moisture barrier or the substrate textile of the moisture barrier layer. Indelible inks could damage the film or coating.

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

10 USING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED 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 USAR/EMS Garment.

10.1 PREPARATION

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

DANGER

Always wear clean and thoroughly dry Garments used in any USAR 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.

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 USAR operations. Your Garment provides minimal protection against heat and flame from flash fires. The materials are tested to provide limited flame and heat resistance, and are tested to provide limited protection from radiant heat.

However radiant and convective heat may be severe enough that you may be burned even while wearing this Garment, and without sustaining damage to the Garment.

DANGER

Flash Fires are extremely dangerous incidents. The radiant and convective heat produced by a flash fire may be severe enough that you may be burned even while wearing this USAR/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.

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"



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**.



Compression against hot surfaces can cause burns

Minimal protection against conductive burns: You can be burned by conductive heat when you contact heated surfaces or objects. Your USAR/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 USAR/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, NFPA 1951/NFPA 1999 Dual-Certified Garments should not be used in situations of high temperature.



Radiant heat from hot surfaces can cause burns

⚠ DANGER

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

⚠ DANGER

You must only use USAR/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 fire fighter clothing.

⚠ DANGER

The buildup of heat in NFPA 1951/NFPA 1999 Dual-Certified 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

USAR 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 their NFPA 1951/NFPA 1999 Dual-Certified Garment!

⚠ WARNING

Do not confuse the component testing requirements that are part of NFPA Standards with the conditions in which USAR 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 USAR 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.

⚠ DANGER

- If you are unavoidably exposed to high temperatures during a USAR 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.

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. At the same time, 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. That natural response does not work very well if it is warmer on the outside of the body than it is inside, or the exertion of the muscles is producing more heat than the system can remove. When the body temperature gets elevated too high, the result can be heat stress, heat exhaustion, or heat stroke.

⚠ WARNING

Overexertion in hot conditions while wearing NFPA 1951/NFPA 1999 Dual-Certified 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 severe 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 USAR 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 that 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 5 common chemicals

Your NFPA 1951/NFPA 1999 Dual-Certified Garment's moisture barrier is tested for resistance against penetration from liquid splash by only five common chemicals after 1 hour exposures. These chemicals are 1. AFFF Foam; 2. battery acid (37 percent w/w sulfuric acid); 3. hydraulic fluid, phosphate ester base; 4. surrogate gasoline fuel C (a 50/50 percent by volume of toluene and iso-octane); and 5. a solution of 65% chlorine. These liquids are tested because they are considered to be the most common chemicals encountered in USAR 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 moisture barrier's protection against penetration of the 5 common fire ground chemicals listed in this section will become more limited. See Section 14 of this Guide on Useful life. See also NFPA 1951, Para. A.1.2.2

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 NFPA 1951/NFPA 1999 Dual-Certified Garment is NOT designed to protect against exposures to hazardous material operations. **You MUST use appropriate protective equipment in situations involving 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

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; nonintact skin; or parenteral contact. Make sure face, mouth, eyes, nose, and nonintact 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 Apparel's specifications; and
- The addition of accessories that are not third party certified to NFPA 1951 and NFPA 1999, or not otherwise approved by Lion Apparel as compatible with NFPA 1951/NFPA 1999 Dual-Certified 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 Apparel or a Lion Apparel Authorized Clean and Repair Center.



11 WASHING, DECONTAMINATING, AND DISINFECTING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENT

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

You can be exposed to many hazardous substances while involved in USAR and/or EMS operations. 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 USAR and/or EMS Contaminants:

USAR 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 ingestion, absorption, inhalation, and parenterally. 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, you need to follow the precautions in this Section on Washing and Decontamination 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.

⚠ WARNING

To reduce the risk of harm from hazardous substances present at a building collapse, damaged vehicle, or hazardous chemicals, you **MUST** wash your Garments.

Bloodborne Pathogens: You are also at risk of exposing your Garments to body fluids that may contain bloodborne pathogens. Following proper washing procedures described later in this section will reduce the risk of infection from these hazards.

11.2 FREQUENCY

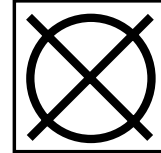
NFPA 1951/NFPA 1999 Dual-Certified Garments should be cleaned 1) at least every six months or; 2) as soon as possible after contamination or exposure to smoke, blood or body fluids, or hazardous substances.

⚠ WARNING

Always wash your NFPA 1951/NFPA 1999 Dual-Certified 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 Dry-Clean your Garments. There are many components in the Garments that will not function if dry-cleaned.



never
dry-clean

⚠ WARNING

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

11.3 CLEANING PRODUCTS

Routine Washing:

- A. Commercially available cleaners. Use commercially available cleaning solutions with a pH greater than 6.0 and less than 10.5. Many household cleaning products fall within this range.
- B. Specialty Cleaners. Some manufacturers of cleaning solutions have developed products that can be used for Protective Clothing. Always read MSDS sheets before using these products. Contact Lion Apparel at 1-800-421-2926 or a Lion Apparel Authorized Clean and Repair Center for additional information.
- C. Spot cleaners and Pre-Treating. Spot cleaners and pre-treatments are available from industrial cleaning product suppliers. Always check MSDS documents and manufacturer's instructions before using these products.

⚠ WARNING

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



no chlorine
bleach



11.4 SPOT CLEANING

- A. Use a cleaning agent that is safe for use on protective clothing fabrics to clean light spots and stains on Garments.
- B. Apply the cleaner one or two times on soiled areas according to the cleaning agent manufacturer's instructions on dilution and application.
- C. Gently rub the fabric together.
- D. 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

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

11.6 HEAVILY SOILED AREAS

- A. Air dry Garment before applying cleaning product.
- B. Saturate the heavily soiled and surrounding area according to the cleaning agent manufacturer's instructions on dilution and application. Follow the cleaning product instructions for duration of soaking.
- C. Use a soft bristle brush (toothbrush or fingernail-type brush dipped in water) to gently scrub the soiled area for 1 or 2 minutes.
- D. Thoroughly and carefully rinse Garment with cool water.
- E. Repeat steps B-D if necessary.
- F. 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.

- A. For a multi-layer Garment, detach outer shells from the inner liners and wash shells and liners separately to avoid redepositing soil from one component to the other. Wash Trilaminates as a single unit.
- B. Pretreat heavily soiled Garments following steps in the Spot cleaning and Pretreating procedures, in Sections 11.4-11.6 of this Guide.
- C. Fasten all closures and turn the Garment inside out or place in a large laundry bag that can be tied shut to avoid damage to the wash tub.
- D. Fasten all hook and loop closures to each other to reduce the likelihood of damage to delicate parts of your Garments.

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 will damage the Garment and reduce its durability and protective value.

The following machine settings should be used:

- A. Wash temperature should be 110° F.
- B. Normal Cycle.
- C. 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.
- B. Add detergent per manufacturer's instructions. Never use Chlorine bleach; non-chlorine bleach may be used. Ensure accurate measuring tools are used for correct detergent dosage. See Section 11.3 of this Section for cleaning agents.
- C. Set washing machine on normal cycle and start the wash cycle.

11.8 DRYING

- A. Remove Garments from washing machine and 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

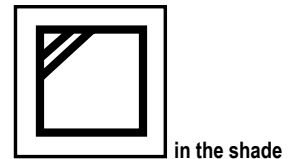
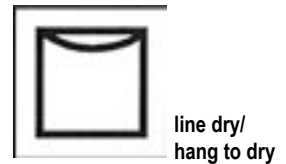
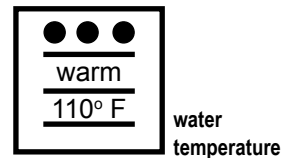
Do not hang Garments to dry in direct or indirect sunlight, or in fluorescent light. Light will severely reduce the strength of the seams, and will discolor and greatly reduce the strength and protective qualities of the components of the Garments.

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 Apparel has made available a network of professional clean and repair centers that are factory approved to provide cleaning for Lion Apparel NFPA 1951/NFPA 1999 Dual-Certified Garments. Lion Apparel recommends that only a Lion Apparel Authorized Clean and Repair Center be used for contract cleaning. For contract cleaning please refer to the back of this Guide for the list of Clean and Repair Centers authorized at time of printing this Guide. For an updated list call (800) 421-2926.



11.11 HAND WASHING IN A UTILITY SINK

Lion Apparel does **NOT RECOMMEND** this method for washing NFPA 1951/NFPA 1999 Dual-Certified Garments. However, if no other options are available, hand washing is preferable to no washing.

Preparation: For multi-layer Garments, detach inner liner from outer shell as indicated in the machine washing instructions. (Wash trilaminates as a single unit.) Wear rubber gloves to protect against exposure to contaminants. Before washing, make sure you comply with all federal, state, and local guidelines for handling effluents from utility sinks.

Cleaning Agents: Use same agents as used for machine washing.

Procedures: Make sure water temperatures are 105° -110°F. Using a hand brush, gently scrub surfaces of inner liner and outer shell. Overscrubbing may damage your NFPA 1951/NFPA 1999 Dual-Certified 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 Apparel does **NOT RECOMMEND** brush washing your NFPA 1951/ NFPA 1999 Dual-Certified Garment on the floor of the station because this method is not effective and may damage your Garment.

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.

CAUTION

Personnel involved in the handling, sorting, bagging, transporting, and laundering of contaminated NFPA 1951/NFPA 1999 Dual-Certified Garments must wear utility gloves and appropriate protective clothing to prevent occupational exposure during these activities.

Preparation. Remove contaminated and infected NFPA 1951/NFPA 1999 Dual-Certified 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.

WARNING

To reduce the risk of harm from hazardous substances present in the products of fire combustion, building materials, hazardous chemicals, and blood or body fluids, you **MUST** wash, and if necessary, decontaminate or disinfect your NFPA 1951/NFPA 1999 Dual-Certified Garments after each exposure to such hazardous substances.

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.

⚠ WARNING

Only a trained expert in decontamination should attempt to decontaminate NFPA 1951/NFPA 1999 Dual-Certified Garments. Contact a Lion Apparel Authorized Clean and Repair Center to seek assistance in determining whether decontamination is possible, and the name of the appropriate organization to perform decontamination.

B. Hazardous Chemicals

1. You should hose down contaminated NFPA 1951/NFPA 1999 Dual-Certified Garments at the scene to limit further exposure to hazardous chemicals, to limit exposure to others, and to limit chemicals from settling into your NFPA 1951/NFPA 1999 Dual-Certified 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 Apparel Authorized Clean and Repair Center to determine the feasibility of decontamination.
3. **UNKNOWN MATERIALS:** If the contaminant is not known, NFPA 1951/NFPA 1999 Dual-Certified 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 Apparel Authorized Clean and Repair Center 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 approved by and registered with the U.S. Environmental Protection Agency and shall also be registered as tuberculocidal. You must use disinfectants that are compatible with NFPA 1951/NFPA 1999 Dual-Certified Garments. If you have questions concerning the use of a particular disinfectant, contact a Lion Apparel Authorized Clean and Repair Center.



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 Apparel Authorized Clean and Repair Center to arrange for disinfection.

11.14 LAUNDRY SAFETY

In the health care field, Laundry and House Keeping personnel are considered to be among those at risk to not only hazardous materials, but also to bloodborne pathogens primarily by exposure to sharps. Your 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.

12 REPAIR METHODS FOR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENTS

⚠ WARNING

Before any repairs are made to your NFPA 1951/NFPA 1999 Dual-Certified 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 to Garments should be done at Lion Apparel Authorized Clean and Repair Centers, or by an expert trained by Lion Apparel. Unauthorized repairs made to Garments invalidate all warranties and may expose wearer to hazardous or life threatening conditions. Please refer to the back of this Guide for the list of Lion Apparel Authorized Clean and Repair Centers at the time of printing of this Guide. For an updated list, call Lion Apparel at (800) 421-2926.

13 STORING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENTS

Between incidents, and for longer-term storage, hang your Garments 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 moisture barrier materials.

Always wash and dry your Garments in accordance with Section 11 of this Guide and before hanging in long-term storage.



FIG. 6
Never store your Garments in direct sunlight, indirect sunlight, or in fluorescent light.

⚠ WARNING

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

⚠ WARNING

NEVER STORE YOUR GARMENT IN DIRECT SUNLIGHT, INDIRECT SUNLIGHT, OR IN FLUORESCENT LIGHT (Fig. 6). 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 (Fig. 7)**. Damage caused by exposure to light cannot be repaired, nor will the manufacturer cover such damage in its warranty. (See Warranty Information, Section 16 of this Guide.)



FIG. 7
To maintain the useful life of your Garment, you must store it away from direct or indirect sunlight and fluorescent light. Always follow inspection and retirement requirements in this Guide. See also NFPA 1851.

⚠ 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.



14 RETIRING YOUR NFPA 1951/NFPA 1999 DUAL CERTIFIED GARMENTS

HOW LONG IS USEFUL LIFE?

- NFPA 1951 and NFPA 1999 performance requirements are based on new, unworn Garments and Composites. Useful life varies depending on Garment materials selected, conditions of wear, maintenance, and storage, but is normally 3 to 5 years.
- Garments more than seven (7) years old and made to earlier versions of the NFPA Standard are highly likely to have exceeded their useful life and must be retired!

CAUTION

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

14.1 USEFUL LIFE AND RETIREMENT

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/NFPA 1999 Dual-Certified USAR/EMS Garments, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life is normally 3 to 5 years, depending on the materials making up the outer shell and inner liner and the conditions of wear, maintenance, and storage. Useful life is highly unlikely to be more than 7 years. A general rule recommended by SAFER and provided in the appendix of the NFPA 1851 Standard on Selection, Care and Maintenance of Personal Protective Equipment, is that a Garment should be retired when the costs of repair would exceed 50% of the replacement cost. The useful life of a Garment will vary according to type and frequency of use, the weight, and type of materials used in the Garment. However, Garments more than 7 years old and made to earlier versions of the NFPA Standard are highly likely to have exceeded their useful life and must be retired!

Your NFPA 1951/NFPA 1999 Dual-Certified USAR/EMS Garments should be assessed at each regular inspection described in Section 6 of this Guide to determine whether it has exceeded its useful life and must be retired.

The following factors affect the useful life of your Garments:

- A. Weight and type of weave of fabric - In general, most lighter weight outer shells will wear out sooner than heavier weight outer shells.
- B. Age and frequency of use - Garments used by the busiest teams will not last as long as those used by less busy teams. Tests of Garments show that outer shell and moisture barrier materials begin to degrade below NFPA performance requirements after 3 to 5 years.
- C. Number and type of previous repairs - Garments repaired many times in the same places from on-duty damage will generally wear out sooner than less frequently damaged or repaired garments.
- D. Type of work the wearer performed - For example, knee areas of the Garment that are used in crawling operations generally will wear out more quickly than other areas.
- E. The length of exposure to flash fire, and the intensity of the heat - Exposure to a flash fire can cause the outer shell and moisture barrier to become brittle. Also repeated cycles of low level, long-term exposure to heat can also damage moisture barrier materials.
- F. The length of exposure to hazardous chemicals - If the exposure to hazardous chemicals is severe, and decontamination is ineffective, the Garment may not be safe for further use.

- G. The length of exposure to direct or indirect sunlight, or other light sources such as fluorescent light - Tests show that exposure to direct or indirect sunlight or fluorescent light causes any outer shell, moisture barrier, and any component made with aramid fibers to become brittle, weak or degraded.
- H. Condition of the moisture barrier - Damaged moisture barriers that allow outside water to pass through to the user should be replaced and retired.
- I. Garments more than 7 years old and made to earlier versions of the NFPA standard are highly likely to have exceeded their useful life.

If you have questions about whether to retire your garments, contact a Lion Apparel Authorized Clean and Repair Center.

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 NFPA 1951/NFPA 1999 Dual-Certified Garment, get assistance before wearing your Garment into any USAR and/or EMS operation!

14.2 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 exposure to fireground conditions. These outer shell shade changes do not affect the protective properties of the shell fabrics.

15 DISPOSING OF RETIRED NFPA 1951/ NFPA 1999 DUAL CERTIFIED GARMENTS

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.



16 LIMITED WARRANTY INFORMATION

Lion Apparel warrants that its USAR/EMS Dual Certified Garments 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 during their useful life.

Conditions of use are outside the control of Lion Apparel. 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 Urban Search and Rescue and Emergency Medical Operations 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 APPAREL 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 Apparel 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 Apparel will not be responsible for any incidental, consequential, or other damages based upon or arising in any way from any breach of the warranties contained herein or the purchaser's use of such product.

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

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



USEFUL LIFE:

NFPA 1951/NFPA 1999 performance requirements are based on new, unworn Garments and Composites. Useful life is 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 is **normally 3 to 5 years**, depending on the materials making up the outer shell, thermal liner, and moisture barrier, and the conditions of wear, maintenance, and storage. **Useful life is highly unlikely to be more than 7 years.** A general rule recommended by SAFER and provided in the appendix of the NFPA 1851 Standard on Selection, Care and Maintenance of Personal Protective Equipment, is that a Garment should be retired when the costs of repair would exceed 50% of the replacement cost. The useful life of a Garment will vary according to type and frequency of use, the weight, and type of materials used in the Garment. Lighter weight outer shell fabrics will have a shorter useful life than that of heavier outer shell fabrics. However, Garments more than 7 years old and made to earlier versions of the NFPA Standard are highly likely to have exceeded their useful life and must be retired!

DEFECTS IN WORKMANSHIP AND MATERIALS:

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

16.1 EXCEPTIONS TO LIMITED WARRANTY

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

- A. Damage from exposure of materials to direct or indirect sunlight or fluorescent light;
- B. Shade variations among textiles used or shade changes to shell fabrics caused by washing and wear and tear;
- C. Damage caused by improper washing, decontamination, disinfecting or maintenance (for example, use of chlorine or petrochemicals to clean);
- D. Damage caused by repair work not performed to factory specification;
- E. Damage from routine exposure to common USAR and/or EMS hazards which may cause rips, tears, burn damage, or abrasion;
- F. Loss of retroreflectivity of reflective trim due to normal wear or heat exposure;
- G. Detachment of reflective trim due to thread abrasion or heat exposure;
- H. Replacement of zippers worn partially sealed, or damaged by heavy wear and tear;
- I. Damage to outer shell fabrics in knees, elbows, shoulders, and cuff areas not protected by reinforcements.

HOW LONG IS USEFUL LIFE?

- NFPA 1951 and NFPA 1999 performance requirements are based on new, unworn Garments and Composites. Useful life varies depending on Garment materials selected, conditions of wear, maintenance, and storage, but is normally 3 to 5 years.
- Garments more than seven (7) years old and made to earlier versions of the NFPA Standard are **highly likely to have exceeded their useful life and must be retired!**



17 SOURCES AND FOR FURTHER INFORMATION

National Fire Protection Association. 2001. NFPA 1951 *Standard on Protective Ensemble for USAR Operations*.

National Fire Protection Association. 2003. NFPA 1999 *Standard on Protective Clothing for Emergency Medical Operations*.

National Fire Protection Association. 2001 NFPA 1851 *Standard for Selection, Care, and Maintenance of Structural Fire Fighting Protective Ensembles*.

National Fire Protection Association. 2002. NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program*.

International Fire Service Training Association, (IFSTA). 1998. *Essentials of Fire Fighting*. 4th Edition.

Lawson, James R. "Thermal Performance and Limitations of Bunker Gear." *Fire Engineering*, August, 1998, 37-56

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

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

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

TRI/Environmental. 1994. *Decontamination of Structural Fire Fighting Protective Clothing and Equipment, Draft Final Report*.

Veghte, James H, Ph.D. 1988. *Fire Fighters' Protective Clothing: Design Criteria*. 2nd Edition.

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

For Further Information, contact Lion Apparel

PO BOX 13576

Dayton, OH 45413-0576

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Fax: (877) 803-1032 or (937) 415-1994

Internet: www.lionapparel.com

E-mail: LionPSG@lionapparel.com

LIST OF CLEAN AND REPAIR CENTERS

Phoenix Fire Service Systems, Inc.
19 S. Fostoria Avenue
Springfield, OH 45505
Tel: 800 257-1875 937 324-2537
Fax: 937 322-4486

Freds 2 the Rescue
650 Versailles Rd.
Frankfort, KY 40601
Tel: 888 606-7446 502 695-5859
Fax: 502 695-1920

SeaWestern, Inc.
12815 N.E. 124th, Suite H
Kirkland, WA 98083
Tel: 800 327-5312 425 821-5858
Fax: 425 823-0636

Scott's PPE Recon
827 Black Diamond Way, Bldg. C2
Lodi, CA 95240
Tel: 209 810-3799
Fax: 209 368-9748

Solutions Safety Services, Inc.
16182 Gothard St., Suite J
Huntington Beach, CA 92647
Tel: 800 713-0677 714 843-5653
Fax: 714 843-6743

Solutions Safety Services, Inc.
6000 Berry Brook
Houston, TX 77017
Tel: 713 943-7223
Fax: 713 943-7930

Danko Municipal Emergency Services
109 S. Ash
Snyder, NE 68664
Tel: 402 568-2288
Fax: 402 568-2279

United Fire & Safety Equipment
125 W. Gemini, Suite E7
Tempe, AZ 85283
Tel: 480 491-5780
Fax: 480 491-5907

FireService Management-Midwest
10600 Gratiot
Detroit, MI 48213
Tel: 866 887-6688 313 267-3206
Fax: 313 267-3209

FireService Management Ltd
34 Torlake Crescent
Toronto, Ontario M87 1B3
Canada
Tel: 416 251-3552
Fax: 416 253-0437

Associated Fire & Safety
3070 Norland Ave., #103
Burnaby, BC V5B 3A6
Canada
Tel: 604 320-3303
Fax: 604 320-3360

ECMS, Inc.
4200 W Russell Rd., Suite 113
Las Vegas NV 89118
702-243-7149
FAX 702-243-7148
ecmsinc@cox.net
Karl Beeman



LIST OF CLEAN AND REPAIR CENTERS (cont.)

National Safety Clean, Inc.
8484 Gulf Freeway
Houston, TX 77017
Tel: 713 644-7400
Fax: 713 644-8848

Fire Brigade Mfg., Inc.
42506 Westech Rd.
Shawnee, OK 74801
Tel: 800 352-0126 405 275-5754
Fax: 405 275-2112

Municipal Equipment Co.
1124 S. Woods Ave.
Orlando, FL 32805
Tel: 800 228-8448 407 843-3071
Fax: 407 648-4142

National Safety Clean, Inc.
225 Birch St.
Kennett Square, PA 19348
Tel: 800 253-2690 610 444-1700
Fax: 610 444-0135

Solutions Safety Services, Inc.
401 E. Magistrate St.
Chalmette, LA 70044
Tel: 504 277-7569
Fax: 504 277-7566

Solutions Safety Services, Inc.
2025 Irving Blvd., Suite 204
Dallas, TX 75207
Tel: 214 742-6156
Fax: 214 742-6153

Gloves, Inc
1950 Collins Blvd.
Austell GA 30106-3661
Tel: 770-944-9186
Fax: 770-944-0012
david@glovesinc.com
David Clark

Laundry Services, Inc
2863 Welton St
Denver, CO 80205
Tel: 303 295-2217
Fax: 303 295-1250
Morey@laundryservices.com
Morey Troy

Solutions Safety Services NW, Inc.
20021 80th Ave, South, Bay 7
Kent, WA 98032
Tel: 253 395-1792
Fax: 253 395-8010
RAL9299020@cs.com
Randy Allsup

Solutions Safety Services, Inc.
6800 A Industrial Rd.
Springfield, VA 22151
Tel: 703 658-6400
Fax: 703 916-1497



IMPORTANT!

You must register the warranty on your garment.

Go to
www.lionrescuewear.bz/warranty

DANGER

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 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

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