USER INSTRUCTION, SAFETY AND TRAINING GUIDE

elbeco
ready for action

Elbeco Tri-Certified Pants
NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Compliant Pants for Technical Rescue, Wildland Firefighting, and Emergency Services Work Apparel

7200 POE AVE.
DAYTON, OHIO 45414
www.LIONprotects.com

June 2026

⚠ DANGER

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

Skin burns can occur when skin reaches a temperature of 118° F (47.8° C).

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

These Pants provide limited protection against flame, in compliance with NFPA 1950 (1951 and 1977) and NFPA 1977, and limited protection against thermal and radiant heat in compliance with NFPA 1950 (1977). While wearing these Pants, you may be burned without heat sensation or warning and in some circumstances, without any sign of damage to the Pants.

These Pants do NOT include an inner thermal liner. ADDITIONAL PROTECTIVE CLOTHING MUST BE WORN FOR ANY STRUCTURAL FIREFIGHTING OPERATIONS.

Copies of labels used only in
NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants

Danger Label

⚠ DANGER

You must read these warnings and instructions. Failure to follow these warnings and instructions will result in serious injury or death. Wear this garment for Stationwear, Technical Rescue Incidents, and Wildland Fire Fighting. Additional garments are required for Structural Fire Fighting.

- 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 1550. 6. limitations on useful life and retirement procedures.
- You should wear this garment only if you have been properly trained in **Technical Rescue Incidents, Wildland Fire Fighting, and Structural Fire Fighting** and have knowledge of the proper selection, fit, use, care and limitations of protective clothing and equipment.
- To reduce the risk of injury or death, ALWAYS ensure the proper overlap and that all items fit with adequate looseness. Tight fit lowers insulation protection and restricts mobility.
- **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.
- Exertion in hot conditions may result in heat exhaustion or poor judgement. If you feel dizziness, dehydration, loss of focus, or shortness of breath, get to a safe area, remove this garment, and seek medical attention.
- **Do not use this garment if it is damaged or dirty**, garments will NOT provide the intended protection. ALWAYS follow manufacturer's cleaning instructions.
- **This garment has limited useful life.** You must inspect regularly and retire when appropriate according to the User Instruction, Safety and Training Guide.
- Download User Guide at: www.LIONppe.com

FI6686-054
Rev. 3.0 6/2026

DO NOT REMOVE OR WRITE ON THIS LABEL!

Pants Certification, Cleaning and Fabric Content Label

elbeco

Questions, write or call immediately:
LION 7200 Poe Ave., Suite 400 Dayton, OH 45414
elbcustomerservice@lionprotects.com
1-800-421-2926

FI 6687-054
6/2026 Rev. 3.0

CLEANING AND STORAGE INSTRUCTIONS

- USERS MUST CLEAN, INSPECT, MAINTAIN, STORE AND ALTER ONLY IN ACCORDANCE WITH THE USER INSTRUCTION, SAFETY AND TRAINING GUIDE. DOWNLOAD @ LIONPPE.COM
- NEVER USE CHLORINE BLEACH. CHLORINE BLEACH WILL SIGNIFICANTLY COMPROMISE THE PROTECTION AFFORDED BY TEXTILES MATERIALS USE IN THE CONSTRUCTION OF THIS GARMENT.
- MACHINE WASH, WARM WATER, USING ONLY LIQUID DETERGENT AND IF NEEDED, LIQUID NON-CHLORINE BLEACH.
- NEVER USE FABRIC SOFTENERS. NEVER DRY CLEAN.
- DRY BY HANGING IN OPEN AREA, OUT OF DIRECT OF INDIRECT SUNLIGHT AND FLUORESCENT LIGHT, OR TUMBLE DRY LOW.
- STORE OUT OF DIRECT OR INDIRECT SUNLIGHT AND FLUORESCENT LIGHT.

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SAFETY US
MH14702

THIS GARMENT MEETS THE BASE REQUIREMENTS OF NFPA 1975, INCORPORATED INTO THE 2025 EDITION OF NFPA 1970 AND MEETS THE OPTIONAL FLAME RESISTANCE REQUIREMENTS OF NFPA 1970 (1975), 2025.
THIS TECHNICAL RESCUE PROTECTIVE GARMENT MEETS THE REQUIREMENTS OF NFPA 1950 (1951), 2025 EDITION. THIS WILDLAND FIREFIGHTING AND URBAN INTERFACE FIREFIGHTING PROTECTIVE GARMENT MEETS THE REQUIREMENTS OF NFPA 1950 (1977), 2025 EDITION.

FABRIC CONTENT IN (U.S.A.): 98% ARAMID/ 2% DISSIPATIVE FIBER

LOT: _____PO:_____MFG:_____SIZE:_____

GARMENT MADE IN: MEXICO
DO NOT REMOVE THIS LABEL

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1. INTRODUCTION

Congratulations on purchasing your new LION product! Your NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants for Technical Rescue, Wildland Firefighting, and Work Apparel (referred to throughout this Guide as the “NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants” or “Pants”) is designed to provide limited protection against physical, environmental and flame to emergency responders involved in search, rescue, extrication, site stabilization, and other mitigation operations at or involving Technical Rescue and/or Wildland incidents. The garment is designed for limited protection to thermal or radiant heat. It and its components are manufactured and certified under the performance requirements of the current editions of NFPA 1950: Standard on Personal Protective Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland and Urban Interface Firefighting; and NFPA 1970 (1975) Standard on Emergency Services Work Apparel.

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

This Guide is a training tool to help you understand your NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants and how to use it in the safest possible manner during Technical Rescue/Wildland operations. Please take the time to read it.

For your personal safety, be alert for important safety messages in this training 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 Pants, 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 Pants, 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.

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

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

Body 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.

Certification/Certified – A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine continued compliance of labeled and listed products with the requirements of this standard.

Component(s) – Any material, part or subassembly used in the construction of the NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants.

Composite(s) – The layer or layers of materials or components.

Entry Firefighting – EXTRAORDINARILY specialized firefighting operations that can include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing very high levels of conductive, convective, and radiant heat; such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Highly specialized thermal protection from exposure to extreme levels of conductive, convective, and radiant heat is necessary for persons involved in such EXTRAORDINARILY specialized operations and because direct entry into the flames is made. NFPA 1951/NFPA 1977/ NFPA 1970 (1975) Tri-Certified Pants are NEVER to be used for entry firefighting or any direct contact with flames or molten metals, and do not provide the required level of protection.

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.

Garment – See Pants.

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.

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

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 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants – (Also referred to in this Guide as Pants). A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine continued compliance of labeled and listed products with the requirements of this standard.

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

Pants – (Also referred to as NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants.) The term Pants used throughout this Guide refers ONLY to those certified for use in Technical Rescue and Wildland Operations. NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants are NOT Structural, Entry or Proximity firefighting protective clothing.

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

Proximity Firefighting – Specialized firefighting operations that can include the activities of rescue, fire suppression, and property conservation at incidents involving fire producing very high levels of conductive, convective, and radiant heat such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Specialized thermal protection from exposure to high levels of radiant heat, as well as thermal protection from conductive and convective heat, is necessary for persons involved in such operations.NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants are NEVER to be used in proximity firefighting and do not provide the required level of protection.

Radiant Protective Performance (RPP) – A numerical value indicating the resistance of materials to a radiant heat exposure.

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

Responder/Emergency Responder – Emergency personnel involved in Technical Rescue and/or Wildland Firefighting Operations.

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

SCBA – Acronym for Self-Contained Breathing Apparatus.

SDS – Acronym for Safety Data Sheets.

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

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

Structural Firefighting – The activities of rescue, fire suppression, and property conservation in buildings, enclosed structures, vehicles, marine vessels, or like properties that are involved in a fire or emergency situation. NFPA 1951/ NFPA 1977/NFPA 1970 (1975) Tri-Certified Pants are NEVER to be used in proximity firefighting and do not provide the required level of protection.

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

Technical Rescue Protective Element – The coat, trouser, and coverall certified elements of the protective ensemble that provide protection to the upper and lower torso, arms, and legs.

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

TPP – Acronym for Thermal Protective Performance.

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

Urban Interface Firefighting – Activities of fire suppression and property conservation within areas of housing or other structures/ improvements that are either intermingled or about vegetation or forest.

Useful Life – The period of time that NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants, which have been properly cared for, can be expected to provide reasonable limited protection. 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.

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

Wildland Firefighting Protective Pants – The coat, trouser, or coverall of the certified Wildland Firefighting protective ensemble that provides protection to the upper and lower torso, arms, and legs.

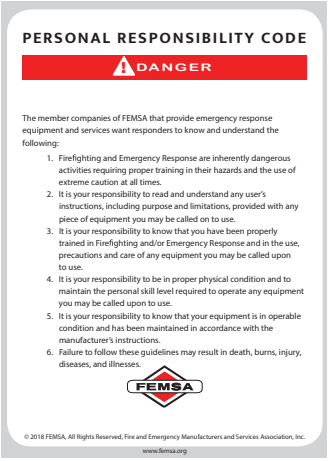
Wildland/Urban Interface (WUI) – The line or zone where structures and other development meet or intermingle with undeveloped wildland or vegetative fuels and the area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.

3. SAFETY CHECKLIST

Do not use this NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants until you have checked "YES" to the following:

1. Have you completed a formal training course in Technical Rescue and/or Wildland Firefighting techniques, the proper use of Technical Rescue and/or Wildland Firefighting equipment andNFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants?
   ❏ 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 Pants?
   ❏ Yes ❏ No



PERSONAL RESPONSIBILITY CODE

DANGER

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

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called on 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, injury, diseases, and illnesses.

FEMSA

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www.femsa.org

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

3. Will you regularly inspect your Pants 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 Pants as described throughout this Guide?
   ❏ Yes ❏ No

5. Have you checked to make sure that your Pants 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 Pants 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 Pants, or receive damage to your Pants 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 in this guide and have been properly trained by qualified instructors.

4. PURPOSE AND LIMITATIONS

These Pants are designed to provide LIMITED protection under the requirements of the NFPA 1950 (1951), NFPA 1970 (1975) and NFPA 1950 (1977), Standards to the legs against hazards TO EMERGENCY RESPONDERS INVOLVED IN SEARCH, RESCUE, EXTRICATION, SITE STABILIZATION, AND OTHER MITIGATION OPERATIONS AT OR INVOLVING TECHNICAL RESCUE AND/OR WILDLAND FIREFIGHTING:

- Flame resistance,
- Physical hazards, including cuts and abrasion.

⚠ DANGER

DO NOT use your Pants for the following:

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

⚠ DANGER

Technical Rescue and/or Wildland Firefighter 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 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Technical Rescue/Wildland Firefighting Pants!

Do not use for ANY structural or proximity firefighting.

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

Do not use for protection against hazardous radiological agents.

Do not use for protection against hazardous biological agents.

Do not use for protection against hazardous chemical agents.

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 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants. For each of the activities described as Technical Rescue/Wildland Firefighting rescue incidents, the authority having jurisdiction should determine if protection provided by your Pants is commensurate with the level of protection needed as deemed by the hazards present. For example, in an automobile extrication the decision for using Technical Rescue /Wildland protective ensembles versus structural firefighting protective ensembles can be dependent on the level of fire risk at the incident.

⚠ WARNING

Controlled lab tests in the NFPA 1951 and NFPA 1977 Standards "should not be deemed as defining or establishing performance levels for protection from all environments". You should always use extreme caution in any Technical Rescue and/or Wildland Firefighting to avoid the risk of injuries. See NFPA 1951, Para.1.2.3; NFPA 1977, Para.1.2.3. and NFPA 1970 (1975), Para. 1.2.2.

⚠ WARNING

Protective properties in a new NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants 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 Pants to ensure that the Pants is not used past its Useful Life.

⚠ DANGER

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

FIRST DEGREE BURNS begin when skin temperature reaches **118° F (47.8° C)**.

SECOND DEGREE BURNS occur when skin temperature reaches approx. **131° F (55° C)**.

THIRD DEGREE BURNS occur when skin temperature reaches approx. **152° F (66.7° C)**.

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

⚠ WARNING

NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants should NEVER be used alone by responders in auto extrication incidents where there is ANY risk of fire.

5. CONSTRUCTION, FEATURES AND FUNCTION

In order to understand the limits of protection provided by your NFPA 1951/NFPA 1977/ NFPA 1970 (1975) Tri-Certified Pants, you should study its construction, features, and function.

5.1 OVERVIEW

Your Pants helps reduce health and safety risks to the Firefighter. It protects the responder because it is made of special heat and flame resistant textiles which when exposed to flame, char instead of melt or combust, thereby reducing further injuries that can be caused by the ignition of the materials. Second, the thickness of the fabrics also creates limited insulation which contributes to the limited protection to the wearer against heat and flame.

Your Garment is designed to meet the requirements of NFPA 1970 (1975), NFPA 1977, and NFPA 1951. These Tri-Certified Pants do not meet the Optional Blood-Borne Pathogen requirements of NFPA 1951 as it does not include a moisture barrier.

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

5.2 IMPORTANT SAFETY FEATURES

Closure System: On the front of the Pants, when properly fastened, prevent the Pants from coming open during Technical Rescue and/or Wildland Firefighting activities.

Pockets: Provide storage for tools.

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

Labels: There are two (2) labels containing cleaning, safety and garment information located on the inside of the Pants. The Garment Safety Label provides critical safety information and directs you to read and understand this Guide. The Garment Information and Cleaning Label explains washing, drying and storage instructions and specific information regarding the Pant model and date of manufacture.

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

⚠ *WARNING*

You must wear an ANSI 107 or ANSI 207-compliant high visibility vest at all times during any emergency operation near roads or highways, unless you are actively engaged in fire suppression or hazardous materials mitigation, during which you must also wear the full ensemble of certified, task-appropriate protective clothing. The high visibility vest's retroreflective trim and fluorescent material increase your likelihood of being seen by motorists and thereby decreases the probability of injury.

6. INSPECTION

Your Pants should be cleaned, inspected and repaired in a frequency and manner consistent with your department's protocol, NFPA 1855 and NFPA 1877.

6.1 PREPARATION

Read all labels first. There are two (2) Safety, Cleaning and Information Labels (See Section 5 of this Guide for location). If any of the labels are missing, return the Pants to the manufacturer immediately.

6.2 FREQUENCY

You should inspect your Pants at the following times: 1.) Upon receipt of your new Pants or replacement component; 2.) At least monthly thereafter during the useful life of the Pants; 3.) After exposure to heat, flames, chemicals; and 4.) After washing, repair or decontamination. You must inspect your Pants as a minimum, at the above frequency intervals to detect more obvious damage and deterioration. Whenever you detect a potential problem through your own inspection, or suspect that the protective qualities might be degraded, your Pants should be inspected by a trained expert at the Fire Department, a LION TotalCare® Center, or factory designated facility.

6.3 INSPECTION PROCESS AND CRITERIA

1. Preparation for Inspection

A. Place Pants on a clean surface in a brightly lighted area.

2. Inspecting the Pants

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 parts of the Pants 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. 2). If the fabric punctures, it must be repaired if economically practical, or the Pants should be retired and disposed of in accordance with Sections 14 and 15 of this Guide.

FIG. 2 Test fabric strength with thumbs

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 buttons) for corrosion or other damage that would require replacement. Check that their attachment to the Pants is secure.

C. Reinforcements, pockets, etc.: Examine all reinforcements and components to make sure they are securely sewn to the Pants. Check all fasteners on pocket flaps for functionality and damage.

D. Accessories: Check all accessory items to ensure that they meet manufacturer's specifications.

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

F. Labels
   a. Verify that all Safety, Cleaning, and Information labels are on the Pants. See p. 2 and Section 5 of this Guide.
   b. Make sure that all Safety, Cleaning, and Information Labels are legible and securely attached to the Pants.

6.4. RECORDKEEPING

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.

⚠ *WARNING*

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

7. DONNING AND DOFFING

7.1 DONNING (PUTTING ON) YOUR GARMENT

With the fly closure unfastened, hold open the Pants. After pulling the Pants to the waist, fasten the fly closure securely. See **(FIG. 3)**. Cinch take-up straps, if present, so the Pants are snug at your waist. Pants that hang down too low in the crotch will dangerously restrict your mobility and will wear out prematurely in the crotch seams. When properly fitted, and correctly donned, the cuffs of your Pants should be no less than 2" and not more than 5" off the floor. Step into your protective footwear, and if they are adjustable, zip them up or tie the laces.

FIG. 3

7.2 DOFFING (REMOVING) YOUR GARMENT

A. First, never remove any personal protective clothing or equipment until you are certain that you are safely removed from the hazard area. Always wear your full ensemble during all phases of Technical Rescue and/or Wildland operations.
B. When you are ready to remove your Pants, you should first remove your gloves, helmet, and coat as applicable.
C. Next disengage the fly closure on your Pants and remove them.

8. PROPER FIT

8.1 CHECKING PROPER FIT

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

8.2 CHECKING THE SIZE

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 Pants.

⚠ *DANGER*

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

9. MARKING CONSIDERATIONS

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

9.1 First, check the Fabric Content Label (it has a serial number on it) to determine whether adequate identifying information was already printed by the manufacturer. The underside of the facing at the Pants fly is recommended.

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

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

Your Pants are designed in compliance with NFPA 1970 (1975), NFPA 1951 and NFPA 1977 to protect the user against specific hazards associated with technical rescue and wildland firefighting operations. This section indicates the hazards associated with these activities, and specific warnings concerning the proper safe usage of your Technical Rescue/Wildland Firefighting Pants.

10.1 PREPARATION

Before beginning any Technical Rescue and/or Wildland Firefighting operation, your Pants should be donned according to the procedures in Section 7 of this Guide, and checked by another person for proper interface.

Do not continue to wear Tri-Certified Pants that have been exposed to products of combustion. Wash your pants as soon as possible after exposure to reduce contamination.

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 1550: *Standard for Emergency Responder Health and Safety*;
- 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"

⚠ DANGER

Always wear clean and thoroughly dry Pants. Soiled or contaminated Pants 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.

⚠ 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 these Pants, and without sustaining damage to the Pants. If you sense combustible gases or debris in the area, you should escape to a safe area until the dangerous condition has been eliminated.

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 skin temperature reaches approximately **118° F.**

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

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

Radiant heat from hot surfaces and flames can cause burns

Minimal protection against conductive burns: You can be burned by conductive heat when you contact heated surfaces or objects. Your Technical Rescue/Wildland Firefighting garment does not include a thermal liner, and therefore the Pants provides only minimal protection from conductive burns. It is critical to avoid contact with any hot surfaces while wearing the Technical Rescue/Wildland Firefighting 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 Pants enough to cause a conductive heat burn when the fabric comes into contact with your skin. Your Pants does not have a thermal liner. Therefore, NFPA 1951/NFPA1977/ NFPA 1970 (1975) Tri-Certified Pants should not be used in situations of high temperature.

Compression against hot surfaces can cause burns

⚠ *DANGER*

These NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants do NOT include a thermal barrier for insulation against heat. To avoid being burned, you must not wear the Pants in high temperature environments and avoid contact with any hot surfaces.

⚠ *DANGER*

You must only use the Technical Rescue/Wildland Firefighting/Station-Work Pants in environments where no structural or proximity fire is present. In rescue situations where fire is present, responders must also wear NFPA 1970 (1971) compliant structural or proximity firefighter clothing.

⚠ *DANGER*

The buildup of heat in NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants can lead to burns without any sign of damage to the Pants. Never wait for signs of Pants damage to warn of imminent burns. Always be aware of your surrounding environment and be ready to escape if you begin to feel tingling or burning sensations.

⚠ DANGER

Technical Rescue and/or Wildland Firefighting personnel who are exposed to a flashover, back-draft, or other flame and high heat environments are at **EXTREME** risk for extensive burn injuries and death even while wearing their NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants!

⚠ WARNING

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

10.3 HEAT STRESS: A SIGNIFICANT CAUSE OF RESPONDER INJURIES

Physical work in a warm or hot environment causes a rise in the temperature inside the body. To protect the body against heat, the heart begins to beat faster so that more blood can be moved to the skin surface. Blood vessels near the skin dilate so that they can carry more blood. In this way, blood in the interior of the body can be brought out near the body's surface and cooled. Most importantly, the body produces sweat that evaporates off the skin to provide cooling. Those natural responses do not work very well for any or all of the following conditions: the ambient air temperature is at least 75° F (23.9° C) or higher, the garment's insulation blocks the transfer of heat away from the body, the garment blocks the evaporation of sweat, or the exertion of the muscles produces more heat than the system can remove. When the body temperature gets elevated too high, the results can be heat strain, heat exhaustion, or heat stroke.

⚠ WARNING

Overexertion in hot conditions while wearing NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants 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 Pants, 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 Pants, 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.

10.4 HEART ATTACKS: A RESULT OF OVEREXERTION

During Technical Rescue and/or Wildland Firefighting 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.

⚠ *DANGER*

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

10.5 LIQUID PENETRATION AND HAZARDOUS MATERIALS

No Protection Against Liquid Penetration or Hazardous Materials

⚠ WARNING

Exposure to smoke particulates produced by combustion may affect cardiovascular health and may increase your risk of cancer. You must secure all interfaces properly to minimize entry of hazardous fireground contaminants. Even small fires produce extremely large amounts of these hazardous products of combustion and firefighters must take care to minimize direct skin contact with products of combustion that are known to penetrate skin, such as Polycyclic Aromatic Hydrocarbons (PAHs) denoted by asterisks(*). **See Products of Combustion table below.**

⚠ 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.

Products of Combustion**

Substances	
Acetaldehyde	Isoprene
Arsenic	Lead compounds, inorganic
Asbestos	Lead compounds, organic
Benz[a]anthracene*	Naphthalene*
Benzene	2-Nitroanisole
Benzo[b]fluoranthene*	Polychlorinated biphenyls
Benzo[k]fluoranthene*	Polychlorinated dibenzodioxins
Benzofuran*	Polychlorophenols
Benzo[a]pyrene*	Radioactivity
1,3-Butadiene	Silica (amorphous)
Cadmium	Sillica (crystalline)
Carbon black (total)	Styrene
Chrysene*	Sulfuric acid (concentrated mists)
Dibenz[a,h]anthracene*	Tetrachloroethylene
Dichloromethane	Toluene diisocyanates
Ethylbenzene	Trichloroethylene
Formaldehyde	Trichloromethane
Furan	Triphenylene
Indeno-1,2,3-[cd]pyrene*	

** Sources and for more information please see: Hwang, Xu, Agnew, Clifton, Malone, Health Risks of Structural Firefighters from Exposure to Polycyclic Aromatic Hydrocarbons: A Systemic Review and Meta-Analysis. 2021, 18 4209 https://doi.org/10.3390; Fent, K.W.; Eisenberg, J.; Snawder, J.; Sammons, D.; Pleil, J.D.; Stiegel, M.A.; Mueller, C.; Horn, G.P.; Dalton, J. Systemic exposure to pahs and benzene in firefighters suppressing controlled structure fires. Ann. Occup. Hyg. 2014, 58, 830–845. International Journal of Environmental Research and Public Health. Fent, K.W.; Eisenberg, J.; Evans, D.; Striley, C.; Snawder, J.; Mueller, C.; Pleil, J.; Stiegel, M.; Horn, G.P. Evaluation of Dermal Exposure to Polycyclic Aromatic Hydrocarbons in Fire Fighters: Report No. 2010-0156-3196, NIOSH Health Hazard Evaluation Program. 2013. Available online: https://www.cdc.gov/niosh/hhe/reports/pdfs/2010-0156-3196.pdf. Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 98, Painting, Firefighting, and Shiftwork; IARC: Lyon, France, 2010.

10.6 ELECTROCUTION

⚠ *WARNING*

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

10.7 BLOODBORNE PATHOGENS

Your Pants are not designed to protect against the hazards of exposure to bloodborne pathogens present in body fluids. See Section 11 of this Guide for more information.

10.8 ADDITIONAL FACTORS AFFECTING SAFETY

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

- **Conditions at the incident beyond the Pants' scope of the limited purposes;**
- **Unauthorized modifications, repairs or replacement of components of the Pants not otherwise in compliance with LION's specifications; and**
- **The addition of accessories that are not approved by LION as compatible with NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants. If you have questions about whether accessories will degrade the performance of your Pants below the NFPA 1951, NFPA 1977, or NFPA 1970 (1975) Standard, contact LION.**

11. WASHING, DECONTAMINATION AND SANITIZATION OR DISINFECTION

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

You can be exposed to many hazardous substances on the job. These substances can contaminate your Pants, and cause harm to you after your body contacts your Pants. This section tells you how to wash and decontaminate your Pants to reduce these hazards.

Routine Fireground Contaminants: Many fire combustion products — including hydrocarbons, polynuclear aromatic compounds, metals such as cadmium and chromium, acids and soot — are hazardous to the firefighter (see page 17). These substances can become embedded in the fibers of your Pants and enter the body through absorption, inhalation, parenteral contact and ingestion. In addition, particulates and other products of combustion can reduce the flame resistance of your Pants and increase your Pants' ability to conduct electricity. To reduce the risk of long-term harm from hazardous substances present in the products of fire combustion, or hazardous chemicals, you MUST wash your Pants. ALWAYS wash hands thoroughly after handling or cleaning protective equipment.

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

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

⚠ WARNING

Some contamination may remain even after decontamination procedures and cleaning processes are used. Decontamination and cleaning does not guarantee that protective clothing and equipment will be 100% free of contaminants. See NFPA 1850, NFPA 1855 and NFPA 1857.

⚠ DANGER

Always clean and thoroughly dry Pants used in any operation. Soiled or contaminated Pants may be combustible, causing serious burns to the wearer.

⚠ WARNING

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

⚠ WARNING

Hazardous fire scene substances and chemicals may penetrate and become absorbed in your Pants. These substances can enter the body through absorption, inhalation, parenteral contact and ingestion. Wipe skin areas near the interfaces of protective clothing and equipment with a wet wipe immediately after doffing. Take a soap and water shower within 1 hour of an incident where an exposure could have occurred.

Reference NFPA 1550 section 16.5.3.1

11.2 FREQUENCY

NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants should be cleaned:

1.) after every use and;

2.) as soon as possible after exposure to smoke, products of combustion or hazardous substances.

⚠ WARNING

Never Dry-Clean your Pants. Dry cleaning solvents are made from petroleum products, which may support combustion and negate the fabric's flame resistant properties.

⚠ WARNING

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

⚠ WARNING

Always wash your NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants separately from other items. Never wash your Pants at home, or at public laundry facilities to avoid the spread of chemical contamination or hazardous combustion products to other laundry.

11.3 CLEANING PRODUCTS

Routine Washing:

A. Commercially available detergents. Use commercially available detergents with a pH greater than 6.0 and less than 10.5. Many household detergents fall within this range.

B. Specialty Cleaners. StationCare 1851 from LION TotalCare® is designed for NFPA 1970 (1975), NFPA 1951 and NFPA 1977 Garments. Always read SDS before use.

C. Spot cleaning and pre-treating. Use commercially available spot cleaners and pretreaters with a pH greater than 6.0 and less than 10.5. Many detergents fall within this range. Always check SDS documents and manufactures instructions before using these products.

no chlorine bleach

⚠ WARNING

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

⚠ WARNING

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

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 Pants.

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 Pants with cool water.

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 Pants with cool water.

C. Place Pants into washing machine and follow the wash procedures in this section.

11.6 HEAVILY SOILED AREAS

A. Air dry Pants before applying cleaning product.

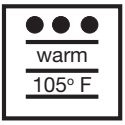
B. Saturate the heavily soiled and surrounding area according to the cleaning agent manufacturer's instructions on dilution and application. Follow the cleaning product instructions for duration of soaking.

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 Pants with cool water.

E. Repeat steps B-D if necessary.

F. Place Pants into the washing machine as instructed in the wash procedures in this Section.



water temperature

machine wash cycle

no chlorine bleach

line dry/hang to dry

in the shade

never tumble dry

never dry-clean

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. Pretreat heavily soiled Pants following steps in the Spot cleaning and Pretreating procedures, in Sections 11.3-11.5 of this Guide.

B. Fasten all closures and turn the Pants inside out or place in a large laundry bag that can be tied shut to avoid damage to the wash tub.

C. Fasten all hook and loop closures to each other to reduce the likelihood of damage to delicate parts of your Pants.

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 Pants as thoroughly, and the agitator will damage the Pants and reduce its durability and protective value.

The following machine settings should be used:

A. Wash temperature should be 105° F (40° C).

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 Pants to be washed. Follow machine manufacturer's instructions for proper load size.

B. Add cleaning product per manufacturer's instructions. Never use Chlorine bleach; non-chlorine bleach may be used. Ensure accurate measuring tools are used for correct 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 Pants 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 Pants.

⚠ *WARNING*

Do not hang Pants 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 Pants.

11.9 DO NOT DRY CLEAN

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

11.10 DECONTAMINATION AND SANITIZATION OR DISINFECTION

Applicable Standard. You must read and have facilities and procedures in compliance with NFPA 1580 Standard for Emergency Responder Occupational Health and Wellness.

Preparation. Remove contaminated and infected NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants from wearer and from service before beginning. Pants should remain out of service until decontaminated and sanitized or disinfected. Wear protective gloves, protective eyewear and appropriate protective clothing and equipment while decontaminating and sanitizing or disinfecting.

⚠ CAUTION

Personnel involved in the handling, sorting, bagging, transporting, and laundering of contaminated NFPA 1950 (1951 and 1977)/ NFPA 1970 (1975) Tri-Certified Pants must wear utility gloves, protective eyewear and appropriate protective clothing to prevent occupational exposure during these activities.

⚠ WARNING

To reduce the risk of harm from hazardous substances present in the products of fire combustion, building materials, you MUST wash, and if necessary, decontaminate, sanitize or disinfect your Pants after each exposure to such hazardous substances.

A. Hazardous Substances (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 your Pants. Contact a LION TotalCare® Center to seek assistance in determining whether decontamination is possible, and the name of the appropriate organization to perform decontamination.

11.11 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 Pants, and it should include LAUNDRY ROOM SAFETY PROCEDURES and HOUSEKEEPING SAFETY PROCEDURES. You should follow all appropriate federal, state, and local regulations.

12. REPAIRS

⚠ WARNING

Before any repairs are made to your Pants, 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 Pants.

All repairs should be done by LION or factory designated facilities. Repairs made to garments by unlisted companies may invalidate all warranties and may expose the wearer to hazardous or life threatening conditions. For other factory designated facilities, call LION at (800) 421-2926.

13. STORAGE

Between incidents, and for longer-term storage, hang your Pants 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 Pants 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.

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

⚠ CAUTION

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

⚠ WARNING

You can store a new ensemble or an ensemble that has been washed, thoroughly dried and re-bagged properly for up to 10 years from its manufacture date under the storage conditions shown above. You must inspect at least once annually according to Section 6 of this Guide. The principal materials of construction suppliers have investigated the shelf life of the respective fabrics. LION has investigated all other components (ex: hardware, hook and loop, reflective trim, etc).

⚠ WARNING

Avoid storing your Pants in temperature extremes. Repeated cycles of heating and cooling can reduce the protective qualities and useful life of the Pants. 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. Exposure to light (particularly light in the sun's rays and fluorescent light) will severely weaken and damage the components in your Pants after only A FEW DAYS. Damage caused by exposure to light cannot be repaired, nor will the manufacturer cover such damage in its warranty. (See Warranty Information, Section 16 of this Guide.)

14. RETIREMENT

14.1 USEFUL LIFE AND RETIREMENT

NFPA 1950 (1951 and 1977) performance requirements are based on new, unworn Pants. Useful life is the period of time that Pants, which have been properly cared for, can be expected to provide reasonable limited protection. Useful life is normally 4-5 years, depending on the materials and the conditions of wear, maintenance, and storage. Useful life is highly unlikely to be more than 15 years. A general rule recommended by SAFER and provided in the appendix of the NFPA 1857 is that Pants should be retired when the costs of repair would exceed 50% of the replacement cost.

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

- Weight and type of weave of fabric
- Age and frequency of use
- Type of work the wearer performed
- The length of exposure to extreme heat, and the intensity of the heat
- The length of exposure to direct or indirect sunlight, or other light sources such as fluorescent light

Assess your Pants at each regular inspection to determine whether it has exceeded its useful life and must be retired

Trained professionals with in-depth knowledge of Pants and their limitations should handle the details of a retirement program. If you have any questions about the useful life and retirement of your Pants, get assistance before wearing it into any emergency situation! Contact a trained expert within your organization, LION, or a LION TotalCare® Center.

14.2 OUTER SHELL COLOR OR SHADE CHANGES

Pants textiles may experience color or shade changes during their useful life as a result of washing and/or exposure to fireground conditions. Shade changes normally do not affect the fabric's protective properties. Nonetheless, inspect your Pants according to section 6 of this guide.

⚠ CAUTION

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

HOW LONG IS USEFUL LIFE?

- NFPA 1950 (1951 and 1977), and NFPA 1970 (1975) performance requirements are based on new, unworn Pants. Useful life varies depending on Pants materials selected, conditions of wear, maintenance, and storage, but is normally 4 to 5 years.
- Pants useful life is highly unlikely to be more than 15 years. Pants more than 15 years old and made to earlier versions of the NFPA Standards are highly likely to have exceeded their useful life and must be retired!

15. DISPOSAL

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

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

⚠ WARNING

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

16. LIMITED WARRANTY INFORMATION

Please use this QR code to access the limited warranty information for all LION products.

Contact LION Customer Support at 800-421-2926 or customersupport@lionprotects.com for questions.

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

Garment ID_____ **Model**_____ **Date of Garment Manufacture**_____

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

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

Date of Retirement_____ Date and Method of Disposal_____

PERSONAL RESPONSIBILITY CODE

DANGER

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

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called on 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, injury, diseases, and illnesses.

FEMSA

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www.femsa.org

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June 2026

elbeco ready for action

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