



CONTAMINATION CONTROL CAMPAIGN

## Standards Resource Database

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### Standards & Contamination Control

- Standards offer a way of clearly articulating requirements and best practices
- Types of standards include
  - Test methods
  - Personal qualifications
  - Product specifications
  - Product selection, care, use, and maintenance requirements
  - Requirements for fire department operations

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### Current Standards

- The Research Foundation has identified **94** different NFA standards that address or could potentially address contamination control issues or practices

Selected NFA Standards Related to Contamination Control (Abbreviated Titles)	
NFA 1500 Occupational Safety & Health	NFA 1901 Fire Apparatus
NFA 1581 Infection Control Program	NFA 1937 Care/Maintenance Rescue Tools
NFA 1594 Member Rehabilitation Process	NFA 1961 Fire Hose
NFA 1700 Structural Fire Fighting Guide	NFA 1971 Structural Fire PPE
NFA 1710 Career Fire Dept. Deployment	NFA 1975 Station/Work Uniforms
NFA 1720 Volunteer Fire Dept. Deployment	NFA 1981 Fire Service SCBA
NFA 1851 Care/Maintenance of Fire PPE	NFA 1992 HazMat PPE
NFA 1952 Care/Maintenance of SCBA	NFA 1999 EMS PPE

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### Obvious Gaps

- Very few standards actually address contamination issues or provide practices for contamination avoidance, remediation, or control
- Most, but not all, equipment standards have some form of user instructions for decontamination and associated care and maintenance standards but requirements are generally limited
  - User instructions typically refer to manufacturer
  - Decontamination is not addressed in detail

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### NFA 1581 – Infection Control

- Infection Control Program
  - Risk management, training & education, infection control officer, health maintenance, infectious exposures, recordkeeping
- Fire department facilities
- Fire department apparatus
- Protection requirements for EMS operations e.g., acceptable PPE)
- Cleaning, disinfecting and disposal

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### NFPA 1581 Excerpts



**5.7 Disinfecting Facilities.**  
5.7.1 Fire departments that provide emergency medical services shall provide or have access to disinfecting facilities for the cleaning and disinfecting of emergency medical equipment.  
5.7.1.1 Medical equipment shall be disinfected at a fire station only where a disinfecting facility that meets the requirements of Section 5.7 is provided.  
5.7.1.2 Disinfection shall not be conducted in fire station lockers, living, sleeping, or personal hygiene areas.  
5.7.2 Disinfecting facilities in fire stations shall meet the following requirements:  
(1) They shall be lighted.  
(2) They shall be vented to the outside environment.  
(3) They shall be fitted with floor drains connected to a sanitary sewer system or septic system.  
(4) They shall be designed to prevent contamination of other fire station areas.  
5.7.3 Disinfecting facilities shall be equipped with racks or shelving to properly cleaned equipment.  
5.7.3.1 Racks or shelving shall be of nonporous material.

**7.2 Personal Protective Equipment.**  
7.2.1 Members providing any emergency medical services shall don medical gloves prior to initiating such care to protect against the variety of diseases, modes of transmission, and unpredictable nature of the work environment.  
7.2.1.1 Medical gloves shall be a standard component of emergency response equipment.  
7.2.1.2 Latex-free or powder-free medical gloves shall be provided for members with a latex allergy or for members providing care for a patient with a latex allergy.  
7.2.2 Medical gloves shall be removed as soon as possible after the termination of patient care, taking care to avoid skin contact with the glove's exterior surface, and shall be disposed of in accordance with 8.5.5.  
7.2.3 Hands shall be washed as specified in Section 8.1 following removal of medical gloves.  
7.2.4 All PPE used while providing emergency medical service shall meet the requirements of NFPA 1999 and shall be cleaned prior to beginning any emergency medical service.

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### NFPA 472 Responder Competency



• Sets competency (training levels) for different levels of hazardous materials responders

- Identification of hazards
- Practicing contamination avoidance
- Selection and use of PPE
- Decontamination
- Risk managements

• Potentially provides awareness on contamination control issues



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### NFPA 472 Excerpts



**5.3.4 Identifying Decontamination Issues.** Given scenarios involving hazardous materials (HME) incidents, the operations level responder shall identify when decontamination is needed by completing the following requirements:  
(1) Identify when people, personal protective equipment, apparatus, tools, and equipment become contaminated  
(2) Describe how the potential for secondary contamination determines the need for decontamination  
(3) Explain the importance and limitations of decontamination procedures at hazardous materials incidents  
(4) Identify the purpose of emergency decontamination procedures at hazardous materials incidents  
(5) Identify the methods, advantages, and limitations of emergency decontamination procedures

**5.4.4 Using Personal Protective Equipment.** Given the personal protective equipment provided by the AIFJ, the operations level responder shall describe considerations for the use of personal protective equipment provided by the AIFJ by completing the following requirements:  
(1) Identify the importance of the buddy system  
(2) Identify the importance of the backup personnel  
(3) Identify the safety precautions to be observed when approaching and working at hazardous materials (HME) incidents  
(4) Identify the signs and symptoms of heat and cold stress and procedures for their control  
(5) Identify the capabilities and limitations of personnel working in the personal protective equipment provided by the AIFJ  
(6) Identify the procedures for cleaning, disinfecting, and inspecting personal protective equipment provided by the AIFJ  
(7) Describe the maintenance, washing, inspection, and storage procedures for personal protective equipment provided by the AIFJ according to the manufacturer's specifications and recommendations

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### NFPA 1971 Structural FF PPE



• Requires manufacturers to provide user information that includes instructions for cleaning and decontamination

• Provides methods for measuring integrity of individual elements (primarily from liquids)

• For 2018 edition, new category for whole ensemble liquid and particulate protection added as option



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### NFPA 1971 New Barrier Hoods



• New optional element for particulate blocking hoods

• Criteria expressly developed to limit firefighter exposure to smoke particulates

- New hoods include barrier layer(s) that are evaluate for preventing particle penetration
- Additional criteria for heat stress relief, durability, and strength




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### Equipment Standards Evolution



Standards for new equipment must follow a process with several steps to adequately address end user needs



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### NFPA 1851 Structural PPE SCAM

- Comprehensive criteria addressing cleaning of turnout gear
  - Establishes department responsibilities for frequency of cleaning
  - Provides general instructions for cleaning
  - Partially addresses decontamination
- Extensive information in annex on selecting independent [cleaning] service providers (ISPs) and evaluating clothing contamination levels



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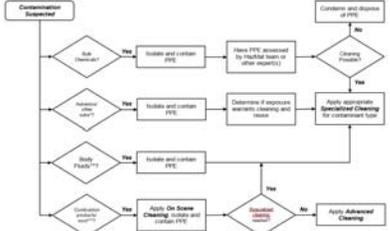
### Proposed Approach to Cleaning



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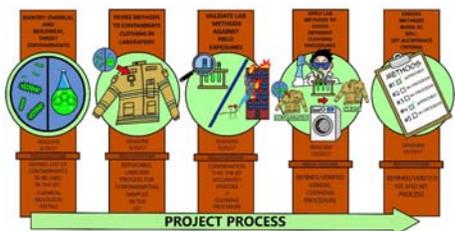
### Contamination Considerations



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### PPE Cleaning Validation



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### Standards Development Activity

- NFPA 1500/1584 going through significant transformation to address fireground contamination
- Majority of PPE standards are creating or revising care & maintenance standards to address contamination
  - Next cycle likely to see widespread changes
- Committee responsible for NFPA 1901 (fire apparatus) proposing changes to address contamination
- Work on new NFPA 1937 for selection, use, and care of rescue tools (could possibly address contamination)

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### Other Standards Beyond NFPA

- ASTM 7822, *Standard Practice for Dermal Wipe Sampling for the Subsequent Determination of Metals and Metalloids*
- AATCC TM 147 *Antibacterial Activity: Parallel Streak Method*
- Product Performance Test Guidelines OCSPF 810.2400: *Disinfectants and Sanitizers for Use on Fabrics and Textiles – Efficacy Data Recommendations*



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### Standards Database Content

- Designation
- Title
- Relevance to contamination control
- Specific applicable sections
- Cycle / revision information
- Criticality rating

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### Sample View of Database

ID	Year	Rev	Date	Title	Standard Number	Category	Relevance	Specific Section	Criticality
1	475	2002	N/A	Recommended Practice for Response to Hazardous Materials	Chapter 10, Section 10.2.1	HAZMAT	Not relevant; implemented into NFPA 475		3
2	475	2002	Annual	Standard for Containment for Response to Hazardous Materials	Chapter 10, Section 10.2.2	HAZMAT	Fire ground operations and contamination control as related to these operations		3
3	475	2002	Annual	Recommended Practice for Organizing, Managing, and Controlling the Response to Hazardous Materials	Chapter 10, Section 10.2.3	HAZMAT	Fire ground operations and contamination control as related to these operations		4
4	488	2002	Annual	Standard for the Recovery Operations of Spill and Leaks	Chapter 13, Section 13.1.1.1	HAZMAT	Training of contamination control and response staff		3
5	475	2002	2002	Standard for Containment for Response to Hazardous Materials	Chapter 10, Section 10.2.2	HAZMAT	Fire ground operations and contamination control as related to these operations		3
6	1080	2007	2007	Standard for Firefighter Qualification	Chapter 4, Section 4.2.2.2	HAZMAT	Fire fighter training, which includes contamination control training		3
7	1080	2007	2007	Standard for Fire Apparatus Qualification - Professional Qualification	Chapter 4, Section 4.2.2.2	HAZMAT	Fire fighter training, which includes contamination control training		3
8	1080	2007	2007	Standard for Professional Qualification for Fire Fighting for Local Authorities	Chapter 4, Section 4.2.2.2	HAZMAT	Fire fighter training, which includes contamination control training		3

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### Utility of Standards

- Standards are voluntary in most jurisdictions, but nationally accepted
  - Can be used as justification for implementing or improving contamination control best practices
- Promotion of overall contamination awareness (competency and training standards)
- Improvement of equipment and care procedures
  - Can be used to qualify new technologies and services

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### Promoting Participation

- Standards depend on participation of members and public for advancement
  - Encouraging fire service participation is important but difficult
- Understanding of process is essential for creating change
  - Process for submitting public inputs and public comments requires experience
- Researchers should take advantage of opportunities for conducting studies to validate new requirements

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### Tutorial on Inputs / Comments

**Preparation**

1. Choose the relevant standard
2. Understand the make up and organization of the respective standard
3. Identify the pertinent section(s) requiring change

**Execution**

4. Enter *TerraView* and navigate to the target section
5. Select section and make modifications
6. Provide substantiation
7. Indicate relation to other inputs or comments

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### Establishing Coordination

**Background**

- Multiple standards projects and committees
- Currently, no formal liaison between most committees
- Committees operate on different schedules

**Possible Solution**

- Form new group under NFPA committee process to address issues related to contamination across multiple standards

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### Standards Resource Questions

- **ST1** – Do you think having a standards resource database is a useful element of the contamination control campaign?
- **ST2** – Do you think that standards are an appropriate means to address contamination control issues and solutions?
- **ST3** – Should the standards resource database be limited to NFPA standards?

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### Standards Resource Questions

- **ST4** – Since many standards can be created or revised to address contamination control, what criteria should be in place for identifying a standard as relevant?
- **ST5** – Should a strategy be developed to ensure coordination and consistency among specific criteria included in standards addressing contamination control?
- **ST6** – Are some types of standards more relevant than others for addressing contamination control?

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### Standards Resource Questions

- **ST7** – What level of detail should be used to describe the potential or relevance of a given standard on contamination control?
- **ST8** – Should the standards resource database be a conduit for promoting public input and comments on existing standards?
- **ST9** – Which NFPA standards, if any, do you think are affected by/should be tracked by this campaign to provide input/comment?

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### Standards Resource Questions

- **ST10** – Which contamination control topics/tools/requirements do you expect to be included in NFPA standards?
- **ST11** – Which contamination control topics/tools/requirements/themes do you expect to be standardized across NFPA standards?
- **ST12** – What format would be most useful for you to interact with the standards?

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### Standards Resource Questions

- **ST13** – How do you or would you use the standards to drive SOPs/SOGs?
- **ST14** – How can the standards (or the standards revision process) be adapted to increase your engagement with the standards/process and make them more useful for your organization?
- **ST15** – Is a tutorial on inputs/comments helpful?
- **ST16** – Should a tutorial be available on the campaign website?

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