



**The
Standardized
Equipment
List (SEL)
2002**

Foreword

The **Standardized Equipment List (SEL)** is provided as a guideline and its use is voluntary. First responders should review the SEL when developing and acquiring their WMD response equipment. The SEL promotes interoperability and standardization among the response community at the local, state, and federal levels by presenting this standard reference. Individual government agencies dictate quantities of the items to be selected to meet the needs of their operational areas.

Governing regulations, industry standards, and other ruling bodies apply. Equipment for First Responder use must be in accordance with the National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), and the National Institute for Occupational Safety and Health (NIOSH). Equipment for use by the United States Department of Defense (DoD) forces is governed by DoD Instruction 6055.1. The SEL will consist of several versions as the list matures and continues to be updated with newly fielded equipment. As a consolidated reference, government organizations can present suggested references, at any time, for consideration to be included in the next version or annual update.

The SEL is organized into categories of:

- Personal Protective Equipment
- Operational Equipment
- InterOperable Communications and Information Systems
- Detection
- Decontamination
- Medical

The IAB, its members, or their parent organizations do not assume liability for the performance of the equipment mentioned in the SEL.

This edition of the SEL uses an updated numbering scheme for its items. This scheme provides increased ability to group SEL items into related sets, and will be used in an on-line interactive version of the SEL scheduled for implementation in late 2003. The format for SEL number is 99xx-88-yyyy, where

99 is the section number, from 01 through 99 (currently 01 through 06 are used)

xx is the category. It is alphanumeric and unique within its section. For example, within Personal Protective Equipment, all items associated with the “NFPA 1994 Class 1 Ensemble” will have the category “N1”.

88 is the numeric subcategory. For example, within the Personal Protective Equipment Section’s NFPA 1994 Class 1 Ensemble, the “Required Items” will all have a SubGroup code of “01”. This code may be set to “00” when not required.

yyyy is the item identifier. It is alphanumeric and unique within its section, class, and group. Using an alphanumeric code at this level increases flexibility, and decreases the chance of human error. For example, the Hard Hat in the various protective ensembles uses the item identifier “HHAT.”

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Personal Protective Equipment

Personal protective equipment (PPE) selection is based on exposure and hazard assessments. Currently, no PPE protects against all hazards. The PP&OE Section of the 2002 SEL is organized by threats and hazard type, correlated to existing standards, and is based on ensembles. By using this format, this section is more “user” friendly. This modified section also illustrates existing standards for CBRNE PPE, identifies gaps in CBRNE PPE for providing protection against specific hazards, and the lack of standards for some equipment. This section also lists powered air-purifying respirators (PAPR) even though no approval criteria have been established for PAPR in situations requiring CBRN protection. Nevertheless, the identification of PAPR in this section recognizes its certification by the National Institute for Occupational Safety and Health (NIOSH) for specific applications against certain industrial gases, vapors, and particulates.

Instructions for Using the Hazard-Standards Table

Use the chart shown on the following page to quickly identify nationally recognized standards that apply to the PPE used for protection from specific types of hazards encountered by the first responder during a WMD incident. Start with the left side of this chart to select the types of hazards that may be potentially encountered by first responders as identified in the first responder hazard/risk assessment. Then look across the top of the chart to find the current nationally recognized standard that provides the protection against the hazards that were selected.

As noted in this section’s introduction, the table below is hazard/risk driven – appropriate PPE is selected based on the hazards and risks anticipated. *The traditional EPA/OSHA levels A, B, C, and D classifications used for hazardous materials ensembles do not accurately describe the protective ability of ensembles for WMD protection.* Therefore, protective ensembles do not use these classifications.

Explanation of Hazards

Hazards identified during the risk/hazard assessment should be the basis for choosing the appropriate standard and its associated PPE. The following hazard categories have been listed to aid in this selection process:

- **Unknown Environment.** An unknown environment represents a situation during the initial parts of a response with the identity of the agent or threat has not been identified. An unknown environment can encompass any chemical or biological threat, but would not take into account the potential for high-energy penetrating radiological hazards, thermal hazards, or explosive hazards.
- **Chemical Vapor/Gas.** A chemical agent or toxic industrial chemical (TIC) found at the response scene that is present as a gas or vapor that evaporates from a liquid. **High** refers to conditions in which

EXPOSURE/HAZARD HIGH = IDLH LOW = STEL/TLV	Respiratory Protection			Personal Protective Clothing									
	NIOSH CBRN-SCBA	NIOSH CBRN-APR	NIOSH CBRN PAPER (01/04)	NFPA 1991 with Chemical/Biological Option	NFPA 1991 with Chemical/Biological and Flash Fire Options	NFPA 1994 Class 1	NFPA 1994 Class 2	NFPA 1994 Class 3	NFPA 1951	NFPA 1999	DOD-Advanced Bomb Suit Performance Specification	NFPA 1971	NFPA 1976
UNKNOWN ENVIRONMENT	■			■	■	■							
CHEMICAL													
Vapor/Gas (high)	■			■	■	■							
Vapor/Gas (low)	■	■	○	■	■	■	■						
Aerosol (high)	■			■	■	■							
Aerosol (low)	■	■	○	■	■	■	■						
Liquids (high)	■			■	■	■	■						
Liquids (low)	■	■	○	■	■	■	■	■					
Particulates (high)	■			■	■	■							
Particulates (low)	■	■	○	■	■	■	■		⊗	⊗		⊗	⊗
BIOLOGICAL													
Airborne	■	■	○	■	■	■	■						
Liquid-borne	■	■	○	■	■	■	■	■	⊗	⊗		⊗	⊗
Particulate	■	■	○	■	■	■	■						
RADIOLOGICAL													
Particulate/Liquid (_ & _)	■	■	○	■	■	■	■	■	⊗	⊗		⊗	⊗
Penetrating (_ & _)													
THERMAL													
Flash Fire	■				■				⊗			⊗	⊗
Sustained Fire												⊗	⊗
EXPLOSIVE													
Pre-detonation											⊗		
Post-detonation	★	★	★	★	★	★	★	★	⊗			⊗	⊗

- Provides protection from the indicated CBRN exposure.
- NIOSH PAPER CBRN requirements are expected in the first quarter of 2004.
- ⊗ Does not provide protection from CBRN exposures, but does provide protection from indicated exposures once the CBRN threat has been mitigated.
- ★ Might provide protection from specific CBRN exposures indicated under the above Chemical, Biological, or Radiological categories.

the chemical is present at concentrations of 1,000 parts per million (ppm) or more. **Low** refers to conditions in which the chemical is present at concentrations less than 1,000 ppm. Examples of chemical vapor/gas hazards include sarin (GB), mustard (HD), ammonia and chlorine.

- **Chemical Aerosol.** For the purposes of the table provided with this section, an aerosol refers to the suspension of fine liquid droplets in air. Many chemical agents are delivered in this fashion. **High** refers to a condition in which a relatively concentrated or dense aerosol exists at the response scene, while **Low** refers to a dilute aerosol being present. High concentrations would be present close to the time or point of a release, while low concentrations would be present further away or some time following the release of the aerosol. Examples of chemical aerosol hazards include sarin (GB) and distilled mustard (HD).
- **Chemical Liquids.** A chemical agent or toxic industrial chemical found at the response scene that is present as a liquid where the potential exists for contact with that liquid. **High** refers to conditions where extended contact in the form of splashes is expected; **Low** refers to conditions where incidental contact could be expected from contaminated surfaces. An example of a chemical liquid hazard is dimethyl sulfate. The G-agents, tabun, soman, and VX are all liquids at room temperature.
- **Chemical Particulates.** A chemical agent or toxic industrial chemical found at the response scene that is present as solid particles (particulate) or dust. **High** refers to conditions where there is a high concentration of particles in the air (10 milligrams per cubic meter or more); **Low** refers to conditions where there is a low concentration of particles in the air (less than 10 milligrams per cubic meter). An example of a chemical particulate hazard is Cyanide (as CN).
- **Biological Airborne.** Microorganisms and other biological agents that can be spread in aerosols (see above) and are considered airborne threats through respiration and in some cases also through dermal contact. Examples of airborne bioterrorism agents are ricin and smallpox.
- **Biological Liquid-borne.** Microorganisms that can be spread by contact with blood, body fluids, and other contaminated liquids. Examples of liquid-borne bioterrorism agents include bubonic plague and ebola.
- **Biological Particulate.** Microorganisms that can be spread as particles suspended in the air. An example of a particulate bioterrorism agent is anthrax.
- **Radiological Particulate/Liquid.** Alpha or beta ionizing radiation that is spread by particles suspended in air or liquids.
- **Radiological Penetrating.** Gamma or X-ray ionizing radiation that has no mass associated with the exposure.
- **Thermal Flash Fire.** A relatively short duration fire of 10 seconds or

less that involves the ignition and combustion of a flammable atmosphere.

- **Thermal Sustained Fire.** A fire involving a structure or other source of materials that continues for period of 1 minute or more until extinguished or through the consumption of the combustible materials present.
- **Explosive Pre-Detonation.** The potential for explosion still exists at the emergency scene.
- **Explosive Post-Detonation.** The device has already exploded and the response scene involves the physical hazards associated with structural collapse and debris.

Explanation of PPE standards

This section describes the standards of respiratory protection listed in the selection table (first three columns). The three types of respirators are described by the specific certifications that apply to each type. Examples are then provided showing occurrences of that type of respiratory protection within the proposed SEL ensembles. Each item is assigned a unique SEL number. However, in many cases, the same item is used in multiple ensembles. The “Same As” field in the tables below will alert the reader to repeated items.

Self-Contained Breathing Apparatus (SCBA) with CBRN Approval

Full facepiece, positive pressure respirators that:

- Meet the certification requirements established for self-contained breathing apparatus (SCBA) in 42 CFR Part 84;
- Are certified to the requirements of NFPA 1981, Standards on Open-Circuit Self-Contained Breathing Apparatus; and
- Meet the additional approval criteria established by the National Institute for Occupational Safety and Health (NIOSH) for Chemical, Biological, Radiological, and Nuclear (CBRN) Protection.

These respirators provided the highest level of respiratory protection for unknown environments and environments where the atmosphere contains agents or contaminants at immediately dangerous to life and health (IDLH) levels. This type of SCBA is tested for a number of performance criteria that apply to general industrial applications, but also are evaluated to NFPA 1981 for sustained delivery of breathing air under a number of different environmental conditions including high heat and flame contact consistent with a flash fire. Finally, SCBA in this category are evaluated for their performance against selected chemical warfare agents and toxic industrial chemicals. This testing includes a full apparatus performance test against live agents. These respirators are not tested for protection against penetrating radiological hazards. References to these respirators occur in multiple ensembles, as shown in the table below. Note that each reference after the first set uses the “Same As” field to alert the reader that the item is identical to a previously-referenced item.

Occurrences of SCBA in PPE Ensembles

NUMBER	SAME AS	DESCRIPTION
01N1-02-SCBA		SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N1-02-SCBC		Cylinders, Spare, and service/repair kits for item 01N1-02-SCBA
01N2-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N2-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N2-02-SCBA
01N4-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N4-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N4-02-SCBA
01N5-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N5-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N5-02-SCBA
01N6-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N6-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N6-02-SCBA
01N7-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N7-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N7-02-SCBA
01N8-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N8-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N8-02-SCBA

Air-Purifying Respirator (APR) with CBRN Approval

Full facepiece, negative pressure respirators that:

- Meet the certification requirements established for particulate and gas filtering air-purifying respirators (APR) in 42 CFR Part 84; and
- Meet the additional approval criteria established by the National Institute for Occupational Safety and Health (NIOSH) for Chemical, Biological, Radiological, and Nuclear (CBRN) Protection.

These respirators provide a lower level of respiratory protection against multiple chemical, biological, and particular radiological hazards when the concentrations of contaminants are at levels below immediately dangerous to life and health (IDLH) levels. These respirators are tested for their performance under both industrial conditions and against selected chemical warfare agents and toxic industrial chemicals at dilute conditions. These respirators are not tested for protection against penetrating radiological hazards. References to these respirators occur in multiple ensembles, as shown in the table below. Note that each reference after the first set uses the “Same As” field to alert the reader that the item is identical to a previously-referenced item.

Occurrences of APR in PPE Ensembles

NUMBER	SAME AS	DESCRIPTION
01N3-02-RAPC		Canisters or Cartridges for Item 01N3-02-RAPR
01N3-02-RAPR		Respirator, Air-Purifying (APR) (certified by NIOSH as compliant with the CBRN approval criteria)
01N6-02-RAPC	01N3-02-RAPC	Canisters or Cartridges for Item 01N6-02-RAPR
01N6-02-RAPR	01N3-02-RAPR	Respirator, Air-Purifying (APR) (certified by NIOSH as compliant with the CBRN approval criteria)

Powered Air-Purifying Respirator (PAPR)

Full facepiece, powered air-purifying respirators that:

- Are outfitted with the appropriate canister or cartridge and meet the respective certification requirements established for particulate and gas filtering air-purifying respirators in 42 CFR Part 84.

These respirators are tested for industrial protection only for specific chemicals and are not evaluated against specific toxic industrial chemicals, chemical warfare agents, or biological agents. The suitability of these respirators must be determined on a case-by-case basis. The National Institute for Occupational Safety and Health is in the process of developing additional approval criteria established by the National Institute for Occupational Safety and Health (NIOSH) for Chemical, Biological, Radiological, and Nuclear (CBRN) Protection. References to these respirators occur in multiple ensembles, as shown in the table

below. Note that each reference after the first set uses the “Same As” field to alert the reader that the item is identical to a previously-referenced item.

Occurrences of PAPR in PPE Ensembles

NUMBER	SAME AS	DESCRIPTION
01N3-02-PAPC		Canisters or Cartridges for Item 01N3-02-PAPR
01N3-02-PAPR		Respirator, Powered, Air-Purifying (PAPR) (certified by NIOSH as compliant with 42 CFR Part 84 and outfitted with a canister or cartridge appropriate to the response)
01N6-02-PAPC	01N3-02-PAPC	Canisters or Cartridges for Item 01N6-02-PAPR
01N6-02-PAPR	01N3-02-PAPR	Respirator, Powered, Air-Purifying (PAPR) (certified by NIOSH as compliant with the 42 CFR Part 84 and outfitted with a canister or cartridge appropriate to the response)

Ensembles

The following sections present 10 ensembles that correspond to various hazards and standards. Each is presented with a short discussion of the level of protection and performance criteria, followed by the individual items. The items are categorized as required, related, or optional. In many cases, individual items appear in more than one ensemble (for example, hard hats). When this occurs, the items table will have a value in the “Same Item As” field to alert the reader that it is identical to a previously listed item.

NFPA 1994 Class 1 Ensembles

Include full-body, totally encapsulating suit with gloves and footwear that provides highest level of protection against chemical and biological agents in accordance with the Class 1 requirement of NFPA 1994. Respiratory protection is provided by a self-contained breathing apparatus.

Level of Protection

NFPA 1994 Class 1 Ensembles are intended for:

- Protection in environments where the chemical or biological substance is unknown, the concentration of the substance is unknown, and the toxicity is not verified.
- Contamination occurs in the form of gas, vapors, aerosols, liquids, or particulates.
- No skin contact with the substance is permitted.

- The persistency of the threat is high.
- Responders are close to point of release in both time and distance.
- Most of victims in the response area are dead or showing serious signs and symptoms

Performance Criteria

Class 1 Ensemble performance criteria in NFPA 1994:

- Define specific criteria for protection against concentrated chemical warfare agents and toxic industrial chemicals, liquid-borne pathogens, and inward leakage of gases and vapors.
- Establish protection against chemical, biological, and radiological particulates by requirement for resistance to gas and vapor inward leakage.
- Provide high level of physical protection.
- Do not address protection against explosive devices or high-energy ionizing radiation.
- Permit separate certification of gloves and footwear.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N1-01-ENSM		Ensemble, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective, including totally encapsulating suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01N1-01-FTWR		Footwear, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01N1-01-GLOV		Gloves, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N1-02-HHAT		Hardhat (certified as compliant to ANSI 89.1)
01N1-02-ITST		Equipment, Inflation Testing, specific to Item 01N1-01-ENSM
01N1-02-SCBA		SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N1-02-SCBC		Cylinders, Spare, and service/repair kits for item 01N1-02-SCBA

01N1-02-TRST	Suit, Training, based on similar design, but different materials as Item 01C1-01-ENSM
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Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N1-03-COOL		Garment/Vest/Device, Cooling (no standard currently applies for this item)
01N1-03-FTWC		Covers, Outer Footwear, Disposable for contamination hazard protection (no standard currently applies for this item)
01N1-03-GBAG		Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N1-03-GLIC		Gloves, Inner, Cotton (no standard currently applies for this item)
01N1-03-GLOD		Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01N1-03-GLOW		Gloves, Outer, Work, for physical hazard protection (marked in accordance with ANSI/ISEA 105)
01N1-03-PASS		PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N1-03-UNCD		Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01N1-03-UNFR		Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N1-03-VEST		Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1994 Class 2 Ensembles

Include full-body, encapsulating or non-encapsulating suit with gloves and footwear that provides an intermediate level of protection against chemical and biological agents in accordance with the Class 2 requirements for NFPA 1994. Respiratory protection is provided by a self-contained breathing apparatus.

Level of Protection

NFPA 1994 Class 2 Ensembles are intended for:

- Protection in environments where the concentration or level of the chemical or biological substance is at immediately dangerous to life and health (IDLH) levels.

- Contamination occurs in the form of aerosols, liquid splashes, or particulates. Limited exposure is expected to gases or vapors.
- Skin contact with the substance is not probable.
- The persistency of the threat is moderate.
- Responders separated from point of release by either time or distance.
- The majority of victims are alive, but are non-ambulatory (need assistance for exiting the scene).

Performance Criteria

Ensemble performance criteria in NFPA 1994:

- Define specific criteria for protection against dilute chemical warfare agents and toxic industrial chemicals, liquid-borne pathogens, limited inward leakage of gases and vapors, and inward leakage of liquids.
- Establish protection against chemical, biological, and radiological particulates by requirement for resistance to gas and vapor inward leakage.
- Provide moderate level of physical protection.
- Do not address protection against explosive devices or high-energy ionizing radiation.
- Permit separate certification of gloves and footwear.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N2-01-ENSM		Ensemble, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective, including suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01N2-01-FTWR		Footwear, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01N2-01-GLOV		Gloves, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N2-02-HHAT	01N1-02-HHAT	Hardhat (certified as compliant to ANSI 89.1)
01N2-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)

01N2-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N2-02-SCBA
01N2-02-TRST		Suit, Training, based on similar design, but different materials as Item 01N2-01-ENSM

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N2-03-COOL	01N1-03-COOL	Garment/Vest/Device, Cooling (no standard currently applies for this item)
01N2-03-FTWC	01N1-03-FTWC	Covers, Outer Footwear, Disposable for contamination hazard protection (no standard currently applies for this item)
01N2-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N2-03-GLIC	01N1-03-GLIC	Gloves, Inner, Cotton (no standard currently applies for this item)
01N2-03-GL0D	01N1-03-GL0D	Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01N2-03-GL0W	01N1-03-GL0W	Gloves, Outer, Work, for physical hazard protection (marked in accordance with ANSI/ISEA 105)
01N2-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N2-03-UNCD	01N1-03-UNCD	Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01N2-03-UNFR	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N2-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1994 Class 3 Ensembles

Include full-body, encapsulating or non-encapsulating garment with gloves and footwear that provides a minimum level of protection against chemical and biological agents in accordance with the Class 3 requirements of NFPA 1994. Respiratory protection may either be provided by an SCBA or an APR outfitted with the appropriate canister or cartridges.

Level of Protection

NFPA 1994 Class 3 Ensembles are intended for:

- Protection in environments where the concentration or level of the chemical or biological substance is at the short-term exposure limit (STEL) or below.
- Contamination occurs in the form of liquid droplets and liquids. No exposure is expected for gases, vapors, or aerosols.
- Skin contact with the substance is not likely.
- The persistency of the threat is low.
- Responders separated from point of release by both time and distance.
- The majority of victims are ambulatory (do not need assistance for exiting the scene).

Performance Criteria

Ensemble performance criteria in NFPA 1994:

- Define specific criteria for protection against diluted liquid chemical warfare agents and toxic industrial chemicals under conditions of evaporation and limited inward leakage of liquids.
- Establish protection against chemical, biological, and radiological particulates Requirement for resistance to gas and vapor inward leakage.
- Provide low level of physical protection.
- Do not address protection against explosive devices or high-energy ionizing radiation.
- Permit separate certification of gloves and footwear.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N3-01-ENSM		Ensemble, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective, including suit or garment with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01N3-01-FTWR		Footwear, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01N3-01-GLOV		Gloves, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N3-02-HHAT	01N1-02-HHAT	Hardhat (certified as compliant to ANSI 89.1)
01N3-02-PAPC		Canisters or Cartridges for Item 01N3-02-PAPR
01N3-02-PAPR		Respirator, Powered, Air-Purifying (PAPR) (certified by NIOSH as compliant with 42 CFR Part 84 and outfitted with a canister or cartridge appropriate to the response)
01N3-02-RAPC		Canisters or Cartridges for Item 01N3-02-RAPR
01N3-02-RAPR		Respirator, Air-Purifying (APR) (certified by NIOSH as compliant with the CBRN approval criteria)
01N3-02-TRST		Suit, Training, based on similar design, but different materials as Item 01N3-01-ENSM

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N3-03-COOL	01N1-03-COOL	Garment/Vest/Device, Cooling (no standard currently applies for this item)
01N3-03-FTWO		Covers, Outer Footwear, for contamination hazard protection (no standard currently applies for this item)
01N3-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N3-03-GLIC	01N1-03-GLIC	Gloves, Inner, Cotton (no standard currently applies for this item)
01N3-03-GLOD	01N1-03-GLOD	Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01N3-03-GLOW	01N1-03-GLOW	Gloves, Outer, Work, for physical protection (marked in accordance with ANSI/ISEA 105)
01N3-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N3-03-UNDD	01N1-03-UNCD	Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01N3-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)

01N3-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)
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NFPA 1991 Ensembles with Optional Chemical/Biological Terrorism Protection

Include full-body, totally-encapsulating suits with gloves and footwear that provides a high level of protection against hazardous chemicals in accordance with NFPA 1991 and chemical and biological agents in accordance with the optional NFPA 1991 chemical/biological terrorism protection requirements. The suit may include an over cover that helps the suit meet the baseline flame resistance requirement as well as providing abrasion resistance. This standard is primarily focused on hazardous materials response involving chemical gases, vapors, liquids, and particulates, but includes additional optional criteria for certification of products against chemical and biological terrorism agents. It differs from NFPA 1994 in that a minimum flame resistance requirement is imposed and more rigorous requirements for material durability are provided. Respiratory protection is provided by a self-contained breathing apparatus.

Level of Protection

NFPA 1991 ensembles with the chemical/biological terrorism protection option are intended for:

- Protection in environments where the chemical or biological substance is unknown, the concentration of the substance is unknown, and the toxicity is not verified.
- Contamination occurs in the form of gas, vapors, aerosols, liquids, or particulates.
- No skin contact with the substance is permitted.
- The persistency of the threat is high.
- Responders are close to point of release in both time and distance.
- Most of victims in the response area are dead or showing serious signs and symptoms

Performance Criteria

Ensemble performance criteria in NFPA 1991:

- Define specific criteria for protection against concentrated hazardous chemicals and additional criteria for chemical warfare agents and toxic industrial chemicals, liquid-borne pathogens, and inward leakage of gases and vapors.
- Establish protection against chemical, biological, and radiological particulates by requirement for resistance to gas and vapor inward leakage.
- Provide high level of physical protection and minimum flame resistance (for preventing clothing from becoming a hazard if contacted by flame or exposed to high heat).

- Do not address protection against explosive devices or high-energy ionizing radiation.
- Permit separate certification of gloves and footwear.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N4-01-ENSM		Ensemble, NFPA 1991 Vapor-Protective, including totally encapsulating suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1991 with chemical/biological terrorism option)
01N4-01-FTWR		Footwear, NFPA 1991 Vapor-Protective (certified as compliant with NFPA 1991 with chemical/biological terrorism option)
01N4-01-GLOV		Gloves, NFPA 1991 Vapor-Protective (certified as compliant with NFPA 1991 with chemical/biological terrorism option)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N4-02-HHAT	01N1-02-HHAT	Hardhat (certified as compliant to ANSI 89.1)
01N4-02-ITST		Equipment, Inflation Testing, specific to Item 01N4-01-ENSM
01N4-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N4-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N4-02-SCBA
01N4-02-TRST		Suit, Training, based on similar design, but different materials as Item 01N4-01-ENSM

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N4-03-COOL	01N1-03-COOL	Garment/Vest/Device, Cooling (no standard currently applies for this item)
01N4-03-FTWO	01N1-03-FTWC	Covers, Outer Footwear, Disposable for contamination hazard protection (no standard currently applies for this item)

01N4-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N4-03-GLIC	01N1-03-GLIC	Gloves, Inner, Cotton (no standard currently applies for this item)
01N4-03-GLOD	01N1-03-GLOD	Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01N4-03-GLOW	01N1-03-GLOW	Gloves, Outer, Work, for physical hazard protection (marked in accordance with ANSI/ISEA 105)
01N4-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N4-03-UNDD	01N1-03-UNCD	Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01N4-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N4-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1991 Ensembles with Optional Chemical/Biological Terrorism Protection and Optional Flash Fire Protection

Include full-body, totally-encapsulating suits with gloves and footwear that provides a high level of protection against hazardous chemicals in accordance with NFPA 1991, chemical and biological terrorism agents in accordance with the NFPA 1991 optional chemical/biological terrorism protection option, and protection against chemical flash fires for escape purposes only in accordance with the NFPA 1991 optional flash fire protection requirements. The ensemble may include an optional over cover or flash cover for meeting these additional requirements. This standard is primarily focused on hazardous materials response involving chemical gases, vapors, liquids, and particulates, but includes additional optional criteria for certification of products against chemical and biological terrorism agents. It also established design and performance criteria for protecting emergency responders from accidental chemical flash fires for escape purposes only. It is the same ensemble as above but also meets the optional flash fire protection criteria. Respiratory protection is provided by an SCBA.

Level of Protection

NFPA 1991 ensembles with the chemical/biological terrorism protection and flash fire protection options are intended for:

- Protection in environments where the chemical or biological substance is unknown, the concentration of the substance is unknown, and the toxicity is not verified.

- Contamination occurs in the form of gas, vapors, aerosols, liquids, or particulates.
- No skin contact with the substance is permitted.
- The persistency of the threat is high.
- Responders are close to point of release in both time and distance.
- Most of victims in the response area are dead or showing serious signs and symptoms.
- Protection against short duration, chemical-based flash fires to permit safe escape from the work scene.

Performance Criteria

Ensemble performance criteria in NFPA 1991:

- Define specific criteria for protection against concentrated hazardous chemicals and additional criteria for chemical warfare agents and toxic industrial chemicals, liquid-borne pathogens, and inward leakage of gases and vapors.
- Establish protection against chemical, biological, and radiological particulates by requirement for resistance to gas and vapor inward leakage.
- Provide high level of physical protection.
- Provide a high level of flame resistance, thermal insulation, and maintenance of ensemble integrity as related to chemical flash fire exposures.
- Do not address protection against explosive devices or high-energy ionizing radiation.
- Permit separate certification of gloves and footwear.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N5-01-ENSM		Ensemble, NFPA 1991 Vapor-Protective, including totally encapsulating suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1991 with chemical/biological terrorism option and flash fire protection options)
01N5-01-FTWR		Footwear, NFPA 1991 Vapor-Protective (certified as compliant with NFPA 1991 with chemical/biological terrorism option and flash fire protection options)
01N5-01-GLOV		Gloves, NFPA 1991 Vapor-Protective (certified as compliant with NFPA 1991 with chemical/biological terrorism option and flash fire protection options)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N5-02-HHAT	01N1-02-HHAT	Hardhat (certified as compliant to ANSI 89.1)
01N5-02-ITST		Equipment, Inflation Testing, specific to Item 01N5-01-ENSM
01N5-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N5-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N5-02-SCBA
01N5-02-TRST		Suit, Training, based on similar design, but different materials as Item 01N5-01-ENSM

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N5-03-COOL	01N1-03-COOL	Garment/Vest/Device, Cooling (no standard currently applies for this item)
01N5-03-FTWO	01N1-03-FTWC	Covers, Outer Footwear, Disposable for contamination hazard protection (no standard currently applies for this item)
01N5-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N5-03-GLIC	01N1-03-GLIC	Gloves, Inner, Cotton (no standard currently applies for this item)
01N5-03-GLOD	01N1-03-GLOD	Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01N5-03-GLOW	01N1-03-GLOW	Gloves, Outer, Work, for physical hazard protection (marked in accordance with ANSI/ISEA 105)
01N5-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N5-03-UNDD	01N1-03-UNCD	Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01N5-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N5-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1951 Ensembles

Includes full-body one or two piece garment, helmet, gloves, footwear, and eye and face protection that provide protection during urban search and rescue (USAR) events, including events such as explosive device post detonation response, structural collapse, and other forms of response that *do not* involve chemical, biological, radiological, or nuclear exposures, except for some very limited areas of protection. Respiratory protection may either be provided by an SCBA or an APR outfitted with the appropriate canister or cartridges.

Level of Protection

NFPA 1951 ensembles are intended for:

- Protection from physical hazards (e.g., rough surfaces, sharp edges, pointed object and other debris)
- Protection from contact with liquid-borne pathogens (e.g., blood and body fluids)
- Limited protection from fireground chemicals (e.g., battery acid, gasoline)
- Protection from petrochemical based, short duration flash fires

Performance Criteria

Ensemble performance criteria in NFPA 1951:

- Define separate requirements for the different ensemble elements (i.e., garments, helmets, gloves, footwear, and eye and face protection).
- Specify minimum levels of tear, cut, abrasion, and puncture resistance for each of the elements.
- Include requirements for flame resistance, heat resistance, and radiant protective performance for demonstrating thermal protection during flash fires.
- Demonstrate resistance of clothing materials to penetration by fireground chemicals and liquid-borne pathogens as well as overall product integrity.
- Address thermal comfort of the wearer.
- Do not address protection against chemical warfare agents, toxic industrial chemicals, airborne biological agents, particulate biological agents, explosive devices or high-energy ionizing radiation.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N6-01-EYEP		Eye/Face Protection, NFPA 1951 USAR Operations Protective (certified as compliant with NFPA 1951)
01N6-01-FTWR		Footwear, NFPA 1951 USAR Operations Protective (certified as compliant with NFPA 1951)

01N6-01-GARM	Garment, NFPA 1951 USAR Operations Protective (certified as compliant with NFPA 1951)
01N6-01-GLOV	Gloves, NFPA 1951 USAR Operations Protective (certified as compliant with NFPA 1951)
01N6-01-HLMT	Helmet, NFPA 1951 USAR Operations Protective (certified as compliant with NFPA 1951)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N6-02-PAPC	01N3-02-PAPC	Canisters or Cartridges for Item 01N6-02-PAPR
01N6-02-PAPR	01N3-02-PAPR	Respirator, Powered, Air-Purifying (PAPR) (certified by NIOSH as compliant with the 42 CFR Part 84 and outfitted with a canister or cartridge appropriate to the response)
01N6-02-RAPC	01N3-02-RAPC	Canisters or Cartridges for Item 01N6-02-RAPR
01N6-02-RAPR	01N3-02-RAPR	Respirator, Air-Purifying (APR) (certified by NIOSH as compliant with the CBRN approval criteria)
01N6-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N6-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N6-02-SCBA

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N6-02-PAPC	01N3-02-PAPC	Canisters or Cartridges for Item
01N6-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N6-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N6-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N6-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1971 Ensembles

Includes full-body one or two piece garment, helmet, gloves, footwear, and hoods that principally provide protection during structural fires, including physical hazards and sustained fire conditions that *do not* involve chemical, biological, radiological, or nuclear exposures, except for some very limited areas of protection. Respiratory protection is provided by SCBA.

Level of Protection

NFPA 1971 ensembles are intended for:

- Protection from sustained fire conditions found in structural fires
- Protection from physical hazards (e.g., rough surfaces, sharp edges, pointed object and other debris)
- Protection from contact with liquid-borne pathogens (e.g., blood and body fluids)
- Limited protection from fireground chemicals (e.g., battery acid, gasoline)

Performance Criteria

Ensemble performance criteria in NFPA 1971:

- Define separate requirements for the different ensemble elements (i.e., garments, helmets, gloves, footwear, and hoods).
- Specify minimum levels of tear, cut, abrasion, and puncture resistance for each of the elements.
- Include requirements for flame resistance, heat resistance, and thermal protective performance for demonstrating thermal protection during flash fires.
- Demonstrate resistance of clothing materials to penetration by fireground chemicals and liquid-borne pathogens as well as overall product integrity.
- Address thermal comfort of the wearer.
- Do not address protection against chemical warfare agents, toxic industrial chemicals, airborne biological agents, particulate biological agents, explosive devices or high-energy ionizing radiation.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N7-01-FTWR		Footwear, NFPA 1971 Structural Fire Fighting Protective (certified as compliant with NFPA 1971)
01N7-01-GARM		Garment, NFPA 1971 Structural Fire Fighting Protective (certified as compliant with NFPA 1971)
01N7-01-GLOV		Gloves, NFPA 1971 Structural Fire Fighting Protective (certified as compliant with NFPA 1971)

01N7-01-HLMT	Helmet, NFPA 1971 Structural Fire Fighting Protective (certified as compliant with NFPA 1971)
01N7-01-HOOD	Hood, NFPA 1971 Structural Fire Fighting Protective (certified as compliant with NFPA 1971)

Related Elements

NUMBER	SAME AS	DESCRIPTION
01N7-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N7-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N7-02-SCBA

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N7-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N7-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N7-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01N7-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

NFPA 1976 Ensembles

Includes full-body one or two piece garment, helmet, gloves, footwear, and hoods that principally provide protection during proximity fires, including physical hazards such as high levels of radiant heat, as well as conductive and convective heat and sustained fire conditions that *do not* involve chemical, biological, radiological, or nuclear exposures, except for some very limited areas of protection. Respiratory protection is provided by SCBA which is required to be provided with radiant heat protection by the garment or by a separate cover.

Level of Protection

NFPA 1976 ensembles are intended for:

- Protection from sustained radiant, convective and conductive flame and heat conditions found at proximity fires
- Protection from physical hazards (e.g., rough surfaces, sharp edges, pointed object and other debris)

- Protection from contact with liquid-borne pathogens (e.g., blood and body fluids)
- Limited protection from fireground chemicals (e.g., battery acid, gasoline)

Performance Criteria

Ensemble performance criteria in NFPA 1976:

- Define separate requirements for the different ensemble elements (i.e., garments, helmets, gloves, footwear, and hoods).
- Specific performance requirements for radiant reflective capability for each element of the proximity ensemble.
- Allows uses of element covers and shrouds to provide radiant reflective protection.
- Specify minimum levels of tear, cut, abrasion, and puncture resistance for each of the elements.
- Include requirements for flame resistance, heat resistance, and thermal protective performance for demonstrating thermal protection during flash fires.
- Demonstrate resistance of clothing materials to penetration by fireground chemicals and liquid-borne pathogens as well as overall product integrity.
- Do not address protection against chemical warfare agents, toxic industrial chemicals, airborne biological agents, particulate biological agents, explosive devices or high-energy ionizing radiation.

Required Items

NUMBER	SAME AS	DESCRIPTION
01N8-01-FTWR		Footwear, NFPA 1976 Structural Fire Fighting Protective (certified as compliant with NFPA 1976)
01N8-01-GARM		Garment, NFPA 1976 Structural Fire Fighting Protective (certified as compliant with NFPA 1976)
01N8-01-GLOV		Gloves, NFPA 1976 Structural Fire Fighting Protective (certified as compliant with NFPA 1976)
01N8-01-HLMT		Helmet, NFPA 1976 Structural Fire Fighting Protective (certified as compliant with NFPA 1976)
01N8-01-HOOD		Hood, NFPA 1976 Structural Fire Fighting Protective (certified as compliant with NFPA 1976)

Related Items

NUMBER	SAME AS	DESCRIPTION
01N8-02-SCBA	01N1-02-SCBA	SCBA – Self-Contained Breathing Apparatus (certified as compliant with NFPA 1981 and by NIOSH as compliant with the CBRN approval criteria)
01N8-02-SCBC	01N1-02-SCBC	Cylinders, Spare, and service/repair kits for item 01N8-02-SCBA

Optional Items

NUMBER	SAME AS	DESCRIPTION
01N8-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N8-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01N8-03-SCBH		Cover, SCBA, Protective Radiant Heat
01N8-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)

NFPA 1999 Protective Clothing

Encompasses full-body or partial body garment, gloves, work gloves, cleaning gloves, footwear, footwear covers and eye/face protection devices that provide protection during emergency medical services (EMS) against liquid borne pathogens associated with blood and body fluids. No respiratory protection is specified.

Level of Protection

NFPA 1999 protective clothing items are intended for:

- Protection from contact with liquid-borne pathogens (e.g., blood and body fluids)

Performance Criteria

Ensemble performance criteria in NFPA 1999:

- Define separate requirements for the different protective clothing items (i.e., garments, gloves, work gloves, cleaning gloves, footwear, footwear covers and eye and face protection devices).
- Demonstrate resistance of clothing materials to penetration liquid-borne pathogens as well as overall product integrity.
- Address thermal comfort of the wearer.
- Do not address protection against chemicals, airborne biological agents, particulate biological agents, explosive devices or high-energy ionizing radiation.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01N9-01-EYEP		Eye and Face Protection Devices, NFPA 1999 Emergency Medical (certified as compliant with NFPA 1999)
01N9-01-FTWC		Covers, Footwear, NFPA 1999 Emergency Medical Protective (certified as compliant with NFPA 1999)
01N9-01-FTWR		Footwear, NFPA 1999 Emergency Medical Protective (certified as compliant with NFPA 1999)
01N9-01-GARM		Garment, NFPA 1999 Emergency Medical Protective (certified as compliant with NFPA 1999)
01N9-01-GLCL		Gloves, NFPA 1999 Cleaning (certified as compliant with NFPA 1999)
01N9-01-GLMP		Gloves, NFPA 1999 Emergency Medical Protective (certified as compliant with NFPA 1999)
01N9-01-GLMW		Gloves, NFPA 1999 Emergency Medical Work (certified as compliant with NFPA 1999)

Related Elements

None.

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01N9-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01N9-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

**Explosive Ordnance Disposal – Advanced Bomb Suit (ABS)
Performance Specification: Bomb Suit, Advanced**

Includes complete ensemble of suit, head protection, hand protection, and foot protection for explosive detonation protection. Requires additional items for CBRN protection.

Level of Protection

The Advanced Bomb Suit is intended for:

- Protection from fragmentation, blast pressure, heat and light flash, and flame generated by an Improvised Explosive Device (IED) or Unexploded Ordnance (UXO). IEDs include letter bombs, pipe

bombs and brief case bombs. UXO includes submunitions, grenades and projectiles.

- Complete 360-degree whole body protection during initial approach and reconnaissance of the IED and UXO and during subsequent implementation of the render safe procedure (RSP).
- Life critical areas of the body shall be given the highest level of protection which includes chest, groin, front and sides of neck, front and sides of head, and front of abdomen.
- Protection to spine from impact with the ground and other hard objects into which the bomb disposal technician can be propelled after an accidental detonation.
- Provide blast overpressure attenuation that will reduce transmitted overpressure to the greatest practical extent possible to the front of the chest and front of the abdomen.
- Provides level of protection from blast-induced head acceleration and neck injury.
- Protection criteria do not address protection from chemical and biological gases, aerosols, liquids, or particulates.

Performance Criteria

- Ballistic testing using fragment simulators will determine protection levels provided against the wide variety of fragment sizes that may travel outward from a detonation of an explosive device.
- Legs shall be given at least 180-degree frontal protection and arms, torso neck and head shall be given 360 degree protection.
- Quick donning within two minutes with assistance and easily doffed from injured or incapacitated personnel.
- Does not impede vision, hearing, breathing, or talking with respect to efficient accomplishment of the mission.
- Protection to heat and light flash during initial high or low order detonation of the explosive filler and the ignition of an incendiary device and flame resistance and self extinguishing for 60 seconds when exposed to incendiary device using petroleum based fillers.

Required Elements

NUMBER	SAME AS	DESCRIPTION
01XD-01-FACE		Equipment, Head and Face Protection, EOD ABS (certified as compliant to DoD Specification)
01XD-01-FOOT		Equipment, Foot Protection, EOD ABS (certified as compliant to DoD Specification)
01XD-01-HAND		Equipment, Hand Protection, EOD ABS (certified as compliant to DoD Specification)

01XD-01-SUIT	Suit, EOD ABS Protective (certified as compliant to DoD Specification)
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Related Elements

NUMBER	SAME AS	DESCRIPTION
01XD-02-941E	01N1-01-ENSM	Ensemble, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective, including totally encapsulating suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01XD-02-941F	01N1-01-FTWR	Footwear, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01XD-02-941G	01N1-01-GLOV	Gloves, NFPA 1994 Class 1 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01XD-02-942E	01N2-01-ENSM	Ensemble, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective, including suit with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01XD-02-942F	01N2-01-FTWR	Footwear, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01XD-02-942G	01N2-01-GLOV	Gloves, NFPA 1994 Class 2 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01XD-02-943E	01N3-01-ENSM	Ensemble, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective, including suit or garment with attached gloves and footwear or booties with outer boots (certified as compliant with NFPA 1994)
01XD-02-943F	01N3-01-FTWR	Footwear, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)
01XD-02-943G	01N3-01-GLOV	Gloves, NFPA 1994 Class 3 Chemical/Biological Terrorism Protective (certified as compliant with NFPA 1994)

Optional Elements

NUMBER	SAME AS	DESCRIPTION
01XD-03-COOL	01N1-03-COOL	Garment/Vest/Device, Cooling (no standard currently applies for this item)

01XD-03-FTW0	01N1-03-FTWC	Covers, Outer Footwear, Disposable for contamination hazard protection (no standard currently applies for this item)
01XD-03-GBAG	01N1-03-GBAG	Bag/Box, Ensemble Gear Storage (no standard currently applies for this item)
01XD-03-GLIC	01N1-03-GLIC	Gloves, Inner, Cotton (no standard currently applies for this item)
01XD-03-GL0D	01N1-03-GL0D	Gloves, Outer, Disposable, for contamination protection (marked in accordance with ANSI/ISEA 105)
01XD-03-GL0W	01N1-03-GL0W	Gloves, Outer, Work, for physical hazard protection (marked in accordance with ANSI/ISEA 105)
01XD-03-PASS	01N1-03-PASS	PASS Device – Personnel Alert Safety System (certified as compliant with NFPA 1982)
01XD-03-UNDD	01N1-03-UNCD	Undergarment, Coverall, Disposable for contamination control (no standard currently applies for this item)
01XD-03-UNDF	01N1-03-UNFR	Undergarment, Flame-Resistant (certified as compliant with NFPA 2112)
01XD-03-VEST	01N1-03-VEST	Vest or Outer Garment, High Visibility (certified as compliant with ANSI/ISEA 107)

Operational Equipment

Equipment and references needed to sustain operations and provide general support during WMD response operations.

References

A suggested library, not necessarily all-inclusive, consists of the most current editions of the publications shown in the table below. Where possible, additional information such as the edition and ISBN number are provided.

NUMBER	DESCRIPTION
02RE-00-CHRS	CHRIS Manual Author: USCG
02RE-00-CTCP	Clinical Toxicology of Commercial Products, Williams & Wilkens Author: Gosselin ISBN Number: 683036327 Edition: 5th Edition
02RE-00-EAGR	Emergency Action Guides, Association of American Railroads Author: Association of American Railroads

02RE-00-ECHE	Emergency Care for Hazardous Materials Exposure Author: Bronstein, Currance ISBN Number: 801678137 Edition: 2nd Pages: 635
02RE-00-EETG	Effects of Exposure to Toxic Gases; First Aid and Medical Treatment Author: Matheson ISBN Number: 9994698605
02RE-00-EHMR	Emergency Handling of Hazardous Materials in Surface Transportation Author: Association of American Railroads ISBN Number: 9990687005
02RE-00-ERHM	Emergency Medical Response to Hazardous Materials, Delmar Publishing Author: Bevelacqua, Stilp ISBN Number: 827378297 Edition: 1st Pages: 522
02RE-00-FCHM	Farm Chemicals Handbook, Meister Publishing Author: Meister ISBN Number: 9990801061 Edition: 2002
02RE-00-FGAC	First Responder's Guide to Agriculture Chemicals Accidents Author: Foden-Weddell ISBN Number: 873717996 Pages: 540
02RE-00-GATX	GATX Tank Car Manual Author: GATX
02RE-00-GCST	Gardner's Chemical Synonyms and Trade Names, Ash Author: Milne ISBN Number: 566082195 Edition: 11th
02RE-00-GICN	Guide for Industrial Chemicals, National Institute for Occupational Safety and Health
02RE-00-GPPS	Gloves Plus (computer program) (or other PPE selection guide) Author: Keith, Lawrence ISBN Number: 873717104 Pages: 26
02RE-00-HCCD	Hawley's Condensed Chemical Dictionary, Sax & Lewis Author: Lewis, Hawley ISBN Number: 471387355 Edition: 14th Pages: 1,300

02RE-00-HCFA	Household Chemicals and Emergency First Aid Author: Foden, Weddell ISBN Number: 873719018 Pages: 448
02RE-00-HMCD	Hazardous Materials Chemistry, Delmar Publishing Author: Bevelacqua ISBN Number: 766814343 Edition: 1st Edition Pages: 192
02RE-00-HMFG	Hazardous Materials Field Guide, Delmar Publishing Author: Bevelacqua, Stilp ISBN Number: 766801551 Edition: 1st Pages: 96
02RE-00-HTCC	Handbook of Toxic and Hazardous Chemicals and Carcinogens Author: Sittig, Pohanish ISBN Number: 081551459X Edition: 4th Pages: 2,300
02RE-00-HZMI	Hazardous Material Injuries Author: Stuz
02RE-00-JCBH	Jane's Chemical/Biological Handbook Author: Sidell ISBN Number: 710619235 Pages: 298
02RE-00-JFSH	Jane's Facility Security Handbook Author: Kozlow, Sullivan ISBN Number: 710622880 Pages: 320
02RE-00-JICM	Joint Information Center (JIC) Manual
02RE-00-MCWC	Management of Chemical Warfare Casualties, Sidell Author: DoD
02RE-00-MERK	Merck Index Author: Chapman, Hall ISBN Number: 412128217 Edition: 12th
02RE-00-MGDB	Matheson Gas Data Book Author: Matheson
02RE-00-MMBC	Medical Management of Biological Casualties Handbook Author: DoD
02RE-00-MMCC	Medical Management of Chemical Casualties Handbook Author: DoD

02RE-00-MMRC	Medical Management of Radiological Casualties Handbook Author: DoD ISBN Number: 1931828237 Edition: 1st Edition Pages: 133
02RE-00-NA00	North American Emergency Response Guidebook Author: U.S. Department of Transportation ISBN Number: 066017992X Edition: 2000
02RE-00-NPGC	NIOSH Pocket Guide to Chemical Hazards Author: JJ Keller & Associate ISBN Number: 1579435874 Pages: 480
02RE-00-PPES	Personal Protective Equipment Selection Guide
02RE-00-QGFC	Quick Selection Guide to Chemical Protective Clothing Author: Forsberg, Mausdorf ISBN Number: 471287970 Edition: 3rd Pages: 124
02RE-00-SHIM	Symbol Seeker, Hazard Identification Manual Author: IFTSA Edition: Int'l Edition
02RE-00-TBGB	TLVs and BEIs Guidebook Author: ACGIH 02RE-00-TCBF Tempest CB FRG (Chem Bio) First Responder Guidebook
02RE-00-TCBQ	Tempest Chem Bio Frequently Asked Questions (CB FAQ) Author: Graves ISBN Number: 966543718 Edition: 1st Pages: 175
02RE-00-THOR	Terrorism Handbook for Operational Responders, Delmar Publishing Author: Bevelacqua, Stilp ISBN Number: 766804755 Edition: 1st Edition Pages: 110
02RE-00-TPLS	Tomes Plus Author: Micro Medics Pages: CD-ROM
02RE-00-TRMQ	Transport of Radiological Materials; Q&A About Incident Response Author: Berga, Byrd, et al

Note: This list does not imply a product endorsement, rather a library reference. Latest available edition of listed reference sources shall take precedence over listed editions and may be in either book or electronic form.

General Equipment

NUMBER	SAME AS	DESCRIPTION
02EQ-00-ACCS		System, Access Control and Badge
02EQ-00-BAGS		Bags and Bivys – Individual Sleeping Systems
02EQ-00-BARM		Armor, Body, Tactical
02EQ-00-BATT	03PW-05 (aLL)	Batteries, Equipment or System, will include those that are rechargeable (e.g., NiCad) or non-rechargeable with extended shelf life (e.g., alkaline, dry cell, etc.)
02EQ-00-BGEQ		Bags, Equipment
02EQ-00-BGEV		Bags, Evidence
02EQ-00-BKPK		Pack, Back, Modular
02EQ-00-BMCC		Medical/Casualty Bags, CDC Standard
02EQ-00-BNOC		Binoculars
02EQ-00-CACS		System, Capture and Containment
02EQ-00-CART		Cart, Field
02EQ-00-CHMS		Containers, Hazardous Material Shipping
02EQ-00-COMP		Compressor, Air, suitable for refilling self contained breathing apparatus (SCBA)
02EQ-00-CONT		Containers, Storage
02EQ-00-CPAC		Carts, Portable Air Cylinder
02EQ-00-EXAC		Extinguisher, Fire, Class ABC
02EQ-00-EXDD		Extinguisher, Fire, Class D
02EQ-00-FANE		Fan, Explosive-proof Exhaust
02EQ-00-FRZR		Freezer/Refrigerator, General Purpose
02EQ-00-GENR	03PW-01-PGEN	Generator
02EQ-00-GLRL		System, Marking, Green Line/Red Line Battery Activated or appropriate substitute
02EQ-00-GRCA		Cables, Grounding, point-type clamps on both ends, 1/8" stainless steel (uninsulated) 50' minimum
02EQ-00-GRRD		Rod, Copper Grounding, 3/4" x 6' (minimum length) with slide hammer
02EQ-00-GRRT		Tester, Ground Resistance
02EQ-00-H2OT		Water Trailers/Source (potable and non-potable)
02EQ-00-HARN		Harness, Safety, with 150' dry line retrieval ropes 12.7mm (meets ANSI Z359)

02EQ-00-HSMN		Heat Stress Monitor (ambient and personal)
02EQ-00-HSSF		Housing, Subsistence and Sanitation (Field Support) for Response Forces
02EQ-00-IRED	04SS-01-IRED	Camera, Infrared
02EQ-00-KTCL		Kit, Chemical Leak Control
02EQ-00-KTFA		Kit, First Aid, Trauma Type
02EQ-00-KTTL		Kit, Tool, Miscellaneous, Non-sparking, to include bung and spanner wrenches
02EQ-00-LOTO		Lock Out/Tag Out Systems
02EQ-00-LTHE		Lights, Hand, Explosive Proof
02EQ-00-LTHH		Light, Handheld Illumination
02EQ-00-LTHM		Lighting System, Helmet Mounted
02EQ-00-LTPA		Lighting, Portable Area Illumination
02EQ-00-MEGA		Megaphone/Public Address System
02EQ-00-MLFT		Tester, Mask Leak/Fit
02EQ-00-MMTR		Multi-Meter, Electrical, intrinsically safe
02EQ-00-OAPT		System, Operations Area Personnel Tracking and Accountability
02EQ-00-PCKO		Pack, Overpack
02EQ-00-REEL		Reel, Electric Cord
02EQ-00-SHCP		System, Collective Protective, for Shelters
02EQ-00-SHEC		System, Environmental Control, for Shelter Systems
02EQ-00-SHLT		Shelter Systems, Rapid Deployment, Hardwall or Softwall (Command and Control, Triage, etc.)
02EQ-00-SIGN		Signs, Restricted Access and Caution Warning
02EQ-00-STLB		Stool, Backless
02EQ-00-TILA		Optics: Thermal Imaging and/or Light Amplification
02EQ-00-TIMR		Timer or Stopwatch
02EQ-00-TPBM		Tape, Boundary Marking: YELLOW Caution/RED Danger/Incident specific (i.e., radiological, biological, chemical)
02EQ-00-VHCL		Vehicle, Commercial, with Run-Flat tires: Vans, SUVs, and Trucks for personnel transportation and equipment movement
02EQ-00-VHMP		Packages, Maintenance, Vehicle and Equipment
02EQ-00-VSTO		Vests, Operational, Duty Gear and Modular Load Bearing Systems

Operational Equipment – Explosive Device Mitigation and Remediation

This list was developed by the National Bomb Squad Commanders' Advisory Board (NBSCAB) to supplement the SEL with equipment specific to the remediation of explosive devices possibly associated with a WMD incident. This list is not all-inclusive, but is intended to be a reference for Public Safety Bomb Squads to select the appropriate equipment for response to a WMD incident. Quantities and specific type items must be determined by the local agency.

NUMBER	SAME AS	DESCRIPTION
02EX-00-BTST		Tester, Battery
02EX-00-DADR		Dearmer/Disrupter
02EX-00-EQRG		Equipment, Rigging (e.g., pulleys, clamps, locking carabiners)
02EX-00-EXMP		Magazines, Portable Explosive
02EX-00-KTFO		Kit, Fiber Optic (inspection or viewing)
02EX-00-MIRS		Mirrors
02EX-00-MTDT		Detector, Metal
02EX-00-PBIE		Equipment, Post Blast Investigation
02EX-00-PROB		Probes, Non-conductive
02EX-00-RBTS		Robot
02EX-00-RBTU		Robot Upgrades
02EX-00-SKKN		Scalpels/Knives, with Additional Blades
02EX-00-STET		Stethoscope, Electric Stethoscope
02EX-00-TCVV		Vessel, Total Containment
02EX-00-TCVW		Upgrades, WMD for TCV (Total Containment Vessel)
02EX-00-TLBO		Tools, Battery-Operated
02EX-00-TLEH		Tools, Electric Hand
02EX-00-TLEX		Tools, Explosive (including but not limited to bootbanger, shaped charges, MWB disrupters, etc.)
02EX-00-TLHN		Tools, Hand
02EX-00-TLHS		Tools, Handsaw
02EX-00-TLPB		Tool, Pipe Bomb Disabling
02EX-00-TLPN		Tools, Pneumatic
02EX-00-TLRO		Tools, Remote Opening
02EX-00-XRAP		X-Ray Unit, Portable
02EX-00-XRAR		X-Ray Unit, Real Time
02EX-00-XRCS		Cassettes, Extra, for X-Ray
02EX-00-XRIP		Plates, X-Ray Intensifying

InterOperable Communications and Information Systems

This section lists equipment and systems providing connectivity and electrical interoperability between local/interagency organizations to coordinate WMD response operations.

IT – Information Technology (Computer-related equipment)

Computers

NUMBER	SAME AS	DESCRIPTION
03IT-01-DTOP		Desktop Computer, Basic i. > Video Graphics Adapter (XVGA) ii. > 16-bit audio iii. > 32MB video memory iv. > 500Mhz processor v. DVD vi. NTSC I/O vii. CDR viii. > 56k modem ix. Network Interface Card (NIC) x. > 15GB hard drive xi. PC MCIA slot xii. >128MB of RAM
03IT-01-LAPT		Laptop Computer, Basic i. > Video Graphics Adapter (XVGA) ii. > 16-bit audio iii. > 32MB video memory iv. > 500Mhz processor v. DVD vi. CDR vii. > 56k modem viii. Network Interface Connection (NIC) card 10/+100 Fast Ethernet ix. > 15GB hard drive (removable) x. PC MCIA slot xi. >128MB RAM

Peripherals

NUMBER	SAME AS	DESCRIPTION
03IT-02-PRNT		Printer
03IT-02-SCAN		Scanner, flatbed or portable

Networking Components

NUMBER	SAME AS	DESCRIPTION
03IT-03-FWAL		Firewall (appliance or HW/SW standalone device)

03IT-03-HUB5	Hub, 5-port or greater
03IT-03-ROUT	Router
03IT-03-SSRV	Server, serial (e.g. printer network adapter)

Video Projectors

NUMBER	SAME AS	DESCRIPTION
03IT-04-PROJ		Projector, Video

Miscellaneous Adapter Cables/Connectors

NUMBER	SAME AS	DESCRIPTION
03IT-05-CABL		Adapter Cables/Connectors, Miscellaneous

Personal Data Assistant (PDA)

NUMBER	SAME AS	DESCRIPTION
03IT-06-PDAC		Personal Data Assistant (PDA) with connectivity

Software

NUMBER	SAME AS	DESCRIPTION
03IT-07-BROW		Software, Internet Browser
03IT-07-CDSS		Software, ICS command/plans and decision-support tools
03IT-07-CRPT		Software, encryption
03IT-07-EMLC		Software, E-mail Client
03IT-07-EMLS		Software, E-Mail Server
03IT-07-FRWL		Software, Firewall
03IT-07-GISS		Software, GIS
03IT-07-IMSG		Software, Instant Messaging
03IT-07-NCBC		Software, NCBC/commercial chemical/hazard software and response system
03IT-07-NMGT		Software, Network management
03IT-07-OFFC		Software, Office software suite (spread sheet, database, word processing and graphics presentation)
03IT-07-OSYS		Software, Operating system (IBM-compatible; W2K/WXP-compatible, Macintosh OS X compatible)

03IT-07-PMOD	Software, Plume modeling (fate and transport)/databases capable of real time linkage to sensors and meteorological monitoring and detection
03IT-07-SVIS	Software, Operational space visualization tools
03IT-07-VIRS	Software, Virus protection

Portable Meteorological Stations

NUMBER	SAME AS	DESCRIPTION
03MT-00-PTMS		Station, Portable Meteorological: Monitors: temperature, wind speed, wind direction and barometric pressure at a minimum

Public Alert/Notification

NUMBER	SAME AS	DESCRIPTION
03PA-00-PANS		Public Alert/Notification

Position Locating Systems

Position Locating System (GPS Based Systems using GPS)

NUMBER	SAME AS	DESCRIPTION
03PL-01-AVLS		Systems, Automatic Vehicle Locating (AVL)
03PL-01-DGPS		Systems, Global Positioning (GPS) i. Differential GPS (DGPS) compatible

Position Locating Systems (non-GPS)

NUMBER	SAME AS	DESCRIPTION
03PL-02-PLTI		Systems, Precision Locating Tracking (PLT) – indoor capable

Power

Generators

NUMBER	SAME AS	DESCRIPTION
03PW-01-PGEN		Generators, Portable

Uninterruptible Power Supplies (UPS)

NUMBER	SAME AS	DESCRIPTION
03PW-02-UPSS		Supply, Uninterruptible Power (UPS)

Power Conditioning Systems

NUMBER	SAME AS	DESCRIPTION
03PW-03-PCDS		System, Power Conditioning

Power Cells

NUMBER	SAME AS	DESCRIPTION
03PW-04-COND		Conditioners
03PW-04-CSOL		Charger, Solar

Batteries

NUMBER	SAME AS	DESCRIPTION
03PW-05-ALKA		Batteries, Alkaline
03PW-05-BASF		Batteries, Intrinsically safe
03PW-05-CLAM		Batteries, Clam Shell
03PW-05-LION		Batteries, Lithium (Li-Ion)
03PW-05-NCAD		Batteries, Nickel Cadmium (NiCad)
03PW-05-NIMH		Batteries, Nickel Metal Hydride (NiMH)

Land-Mobile Radio (LMR)/2-way communications**Radios and Bases**

NUMBER	SAME AS	DESCRIPTION
03RA-01-BASE		Base i. Digital and Analog capable ii. Support 25Khz and 12.5Khz channels iii. Supports conventional systems iv. Project 25 compatible
03RA-01-MOBL		Mobile i. Digital and Analog capable ii. Support 25Khz and 12.5Khz channels iii. Supports conventional systems iv. Project 25 compatible
03RA-01-PORT		Individual/portable i. Digital and Analog capable ii. Support 25Khz and 12.5Khz channels iii. Supports conventional systems iv. Project 25 compatible

Other Radio Equipment

NUMBER	SAME AS	DESCRIPTION
03RA-02-BAMP		Amplifiers, Bi-directional a. Application defined

03RA-02-BRDG	Bridging a. Hardwired or Software definable b. Multi-mode/Multi-band c. Supports 4, or more, transmit/ receive radio frequency (RF channels) d. Scaleable e. Telephone interface
03RA-02-HFRQ	High Frequency (HF) a. Deployable Antenna Systems b. Automatic Link Establishment (ALE)
03RA-02-REPT	Repeaters a. Digital and Analog capable b. Support 25Khz and 12.5Khz channels c. Supports conventional systems d. Project 25 compatible e. Portable and/or Fixed f. Able to pass encryption transparently

Site Surveillance/Survey

Cameras

NUMBER	SAME AS	DESCRIPTION
03SS-01-IRED		Infrared (IR) a. Thermal b. Forward Looking Infrared Radiation (FLIR) c. Decontamination-able/Disposable d. Intrinsically safe housing
03SS-01-IRIL		Illumination Equipment (IR) a. Decontamination-able/Disposable b. Intrinsically safe housing
03SS-01-LAMP		Light Amplification a. Decontamination-able/Disposable b. Intrinsically safe housing
03SS-01-STIL		Still Camera a. Decontamination-able/Disposable b. Intrinsically safe housing
03SS-01-VCAM		Camera, Video a. Decontamination-able/Disposable b. Intrinsically safe housing

Wireless Priority Service**Cellular Phones**

NUMBER	SAME AS	DESCRIPTION
03TC-01-CELL		Phone, Cellular i. Analog and Digital compatible ii. Cellular Priority Access Service (CPAS) enabled
03TC-01-CMOD		Modem, Cellular i. General Packet Radio Service (GPRS) enabled

Land Lines

NUMBER	SAME AS	DESCRIPTION
03TC-02-LPBX		Line, Land i. Portable Private Branch Exchange (PBX)

Paging

NUMBER	SAME AS	DESCRIPTION
03TC-03-PAGE		Paging

Satellite Phones and Modems

NUMBER	SAME AS	DESCRIPTION
03TC-04-SATP		INMARSAT – B
03TC-04-UHFP		UHF

Microwave Data Link Applications, Non–infrastructure Based, Local

NUMBER	SAME AS	DESCRIPTION
03TC-05-MWAV		Applications, Microwave Data-Link, Non–infrastructure based, local

Wire Line Communications/Hardware

NUMBER	SAME AS	DESCRIPTION
03WL-00-NRSL		Line, Non-radiation Shielded Transmission

Wireless Local Area Network (LAN)

Local

NUMBER	SAME AS	DESCRIPTION
03WN-01-WLAN		Network, Local area wireless data i. Must include user defined wireless security ii. Must be frequency hopping (FH) compatible iii. Compatible with networkable operating systems iv. >10MBPS data transmission speeds

National

NUMBER	SAME AS	DESCRIPTION
03WN-02-ASDS		Service, Asymmetrical Satellite Data
03WN-02-DBSS		Signal, Direct Broadcast (DBS)

Detection

Equipment to sample, detect, identify, quantify, and monitor for WMD agent (Chemical, Biological, Radiological, Nuclear, and Explosive) contamination throughout designated areas or at specific points, and those items to support detection activities.

Detection: A device capable of sampling the environment to inform personnel when agents are present. There are two types of detectors:

- **Detection, Point.** Point detectors are those sensors that must be in the aerosol plume, or have the suspect agent introduced into/onto them for sensing. Sensors that are in the plume but transmit data outside the plume for reading are regarded as point, remote sensors.
- **Detection, Standoff.** A detection device that is at such a distance away from the aerosol/ plume that the detection device is completely outside of the contamination. The Standoff Detector is located in a “clean” area and attempts to detect possible contaminated areas from a distance from the Detector.

Identification: Identification is the specific identification as to genus, species, toxin, chemical, or radioisotope. Identification allows decision-makers to refine post-attack treatment protocols, adds confidence to detection alarms and down-wind hazard predictions previously made on the sensor data, and provides more input to command decision-makers.

Quantification: The instrument’s ability to determine the amount of the specific hazard.

Note: The letters [D], [I], [Q] after each instrument or detection equipment type indicates the general capability in reference to the definitions above. The sub-bullets under detection equipment types are some but not all of the technologies that fall into that category.

The manufacturer's product specification sheets should be consulted for specific performance regarding detection of WMD agents and/or Toxic Industrial Chemicals.

Chemical Detection

NUMBER	SAME AS	DESCRIPTION
04CD-01-DCSO		Detector, Stand-Off, Chemical [D, I]
04CD-01-DNIT		Detector, Non-intrusive, for WMD and TICs [D,I]
04CD-01-M8DP		Paper, Detection, M-8, for chemical agent (G, H, V) identification [D, I]
04CD-01-M9DP		Paper, Detection, M-9 (roll) for chemical agent (military grade) detection [D]
04CD-01-OXPA		Paper, Oxidizing [D]
04CD-01-PHMT		pH Paper/pH Meter [D,Q]
04CD-02-KCTC		Kit, Colorimetric Tube/Chip, specific for TICs and WMD applications [D, I, Q]
04CD-02-KLSV		Kit, Chemical Classifying for unknown liquids, solids and vapors [D, I, Q]
04CD-02-KPCB		Kit, PCB Test
04CD-02-KPST		Kit, Pesticide Screening [D, I, Q]
04CD-02-KTHG		Kit, Mercury Test
04CD-02-KWTR		Kit, Chemical Agent Water Test [D]
04CD-02-KWWC		Kit, Waste Water Classifier [D]
04CD-02-M256		Kit, M-256(A1) Detection for chemical agent (military grade: blister: CX/HD/L, blood: AC/CK and nerve: GB/VX) detection [D]
04CD-02-T256		Kit, M-256(A1) Training
04CD-03-DPFI		Detector, Point Chemical Agent, Flame Ionization (FID) [D, I, Q]
04CD-03-DPFP		Detector, Point Chemical Agent, Flame Photometry [D, I, Q]
04CD-03-DPGC		Detector, Point Chemical Agent, Gas Chromatograph/Mass Spectrometer, (GC/MS) [D, I, Q]
04CD-03-DPIR		Detector, Point Chemical Agent, Infrared [D, I, Q]
04CD-03-DPMG		Detector, Point Chemical Agent, Multi-gas Meter with minimum of O2 and LEL [D, I, Q]
04CD-03-DPPI		Detector, Point Chemical Agent, Photo-Ionization (PID) [D, I, Q]

04CD-03-DPSI	Detector, Point Chemical Agent, Spectrometry, Ion Mobility [D, I, Q]
04CD-03-DPSW	Detector, Point Chemical Agent, Surface Acoustic Wave [D, I, Q]

Chemical Support

NUMBER	SAME AS	DESCRIPTION
04CS-00-KAVC		Kit, Air/Vapor Chemical Sampling/Evidence
04CS-00-KLCS		Kit, Liquid Chemical Sampling/Evidence
04CS-00-KSCS		Kit, Solid Chemical Sampling/Evidence
04CS-00-KVES		Kit, Chemical Sampling/Evidence, Containment Vessels
04CS-00-LEAK		Detectors, Leak (e.g., soap solution, ammonium hydroxide, ultrasonic, etc.)

Radiological Detection

NUMBER	SAME AS	DESCRIPTION
04RD-00-CHRP		“Chirper”, Radiation [D,Q]
04RD-00-DHPG		Detector, High-Purity Germanium [I, Q]
04RD-00-DOSE		Dosimeters, Electronic (ED) [D,Q]
04RD-00-DOSP		Dosimeters, Personal (Film or TLD) [Q]
04RD-00-DOSS		Dosimeters, Self-Reading (SRD) or Pocket Ionization Chambers (PIC) [Q]
04RD-00-HHCM		Meters, Contamination, Handheld (Alpha/Beta, Beta/Gamma) [D, I, Q]
04RD-00-HHDR		Meters, Dose Rate, Handheld (Beta/Gamma) [D, I, Q]
04RD-00-HHSP		Spectrometer, (NaI or CZT) with Nuclide Identification, Handheld [I, Q]
04RD-00-MPNG		Detector, Gamma and Neutron, Passive, Backpack/Man Portable
04RD-00-PDGA		“Detector”, Personal Radiation (Gamma) [D]
04RD-00-PDNG		“Detector”, Personal Radiation (Neutron and Gamma) [D]
04RD-00-PMVP		Monitors, Portal (Vehicles and Personnel) [D]
04RD-00-PMXR		Monitors, Portal/X-Ray (Large and Small Packages) [D]

Radiological Support

NUMBER	SAME AS	DESCRIPTION
04RS-00-AFCB		Calibrators, Air Flow
04RS-00-ASHH		Sampler, Air, Personal and Handheld
04RS-00-ASHV		Sampler, Air, High Volume

Biological Detection

NUMBER	SAME AS	DESCRIPTION
04BD-00-DNRN		Analysis, DNA/RNA Detection [D, I, Q] (example: PCR)
04BD-00-KFAS		Kit, Field Assay [D,I]

Biological Support

NUMBER	SAME AS	DESCRIPTION
04BS-00-KBAP		Kit, Biological Sampling/evidence – Automated perimeter sampling systems
04BS-00-KBBA		Kit, Biological Sampling/evidence – Batch
04BS-00-KBCN		Kit, Biological Sampling/evidence - Continuous
04BS-00-KBPA		Kit, Biological Sampling/evidence – Portable air sampler

General Support

NUMBER	SAME AS	DESCRIPTION
04GS-00-ENVS		Equipment, Environmental (Weather) Surveillance to Support CBRNE Detectors
04GS-00-IHTS		Sensor, Heat, Infrared
04GS-00-THMS		Thermometer, Surface

Decontamination

Mobile decontamination systems (e.g. trailers, tents) and equipment used to clean, remove or mitigate chemical, biological, or radiological contaminated people with individual and mass application, including ambulatory and non-ambulatory, with environmental controls, (i.e. water heating system, showers, lighting, etc.)

Pre-Decontamination

NUMBER	SAME AS	DESCRIPTION
05D1-00-BPTI		Bags, Patient Isolation
05D1-00-KITD		Kits or Packets, Personal Decontamination (i.e. M291-M295)
05D1-00-LITR		Litters, Extraction, rollable
05D1-00-TCDS		Cones, Traffic and Directional Signage in multiple languages or pictographs

Active Decontamination

NUMBER	SAME AS	DESCRIPTION
05D2-00-BASN		Basins, Spill Containment Devices
05D2-00-BLAD		Bladder, Runoff Containment, decontamination shower waste collection with intrinsically-safe evacuation pumps
05D2-00-BPPH		Bags, Personal Property, CW-hardened disposable
05D2-00-CBAS		Basin, Containment, Vehicle and Personnel-Sized
05D2-00-DASE		Applicator, Decontamination, and available solutions for equipment
05D2-00-DASP		Applicator, Decontamination, and available solutions for personnel
05D2-00-DRUM		Drum, Salvage
05D2-00-HEPA		Vacuum, HEPA (High Efficiency Particulate Air) for dry decontamination
05D2-00-LITE		Lighting, Decontamination Area
05D2-00-LITR	06ME-01-LITR	Litters, Extraction, rollable, decon
05D2-00-PMPD		Pumps, Diaphragm, Hand-operated, with hoses
05D2-00-SPRY		Sprayer, Pressurized
05D2-01-PPTS		System, Personal Property Tracking

Post-Decontamination

NUMBER	SAME AS	DESCRIPTION
05D3-00-BCNT		Bags, Cadaver, Non-transparent (CDC standard)
05D3-00-BLKT		Blankets, Disposable
05D3-00-CLOM		Clothing, Disposable Modesty with footwear, adult and child sizes
05D3-00-COOL		System, Cooling/Misting, Personnel Area
05D3-00-HEAT		Heater/Blower, Personnel, Transportable
05D3-00-TOWL		Towels, Disposable
05D3-00-WHET		Heater, Water, portable

Note: This SEL reflects the medical operational equipment that is considered essential to support a response. It does not articulate the additional personal protection equipment (PPE), patient decontamination or sensor/monitoring devices that will be required as a component of comprehensive medical response to a terrorist incident. For information on these aspects please refer to the appropriate section(s) within this document for further resources.

Medical

The Medical SubGroup provides guidance regarding health and medical aspects of local, state, and federal standardization, interoperability, and responder safety to prepare for, respond to, mitigate, and recover from any incident by identifying requirements for chemical, biological, radiological, nuclear, or explosives (CBRNE) incident response equipment.

Items on the medical SEL are divided into 3 categories: pharmaceuticals, equipment and supplies. Medications and fluids are included under “pharmaceuticals.” “Equipment” is generally considered to be durable material, while “supplies” are single use, disposable, or inexpensive (<\$100.00/item). The logistics required to support medical operations, but not directly related to patient care or medical support of personnel are found elsewhere in the SEL, and are not included in the medical sections.

The medical SEL is presented in a matrix format so that users can understand the intended applications and justification for inclusion of each item. These applications, displayed as columns in the list, reflect the all-hazards approach to community emergency preparedness (CBRNE). Accordingly, the first column is titled “Chemical Agent/HAZMAT Incident” including the materials that are considered essential following an incident of chemical terrorism, or large scale industrial or transportation accident. Likewise, the next 2 columns are titled, “Biological Agent/Public Health Emergency”, which encompasses biological terrorism, pandemic, or an emerging infectious disease that overwhelms a community’s medical resources and “Nuclear Agent/Radiation Emergency” again addressing a deliberate or accidental release of radiation or radioactive material. The 4th column is called “Medical Support for Prolonged Operations,” and refers to medical material required to sustain emergency personnel working in hazardous and/or austere environments. The 5th column, “EMS Standard Supplies and Equipment” reflects the need for resources to accommodate surges in call volume, much, but not all of which will be related to a specific incident. The final column, “Disaster Medical Equipment & Supplies” outlines the essential medical components for establishment of field hospitals, off-site isolation and care facilities, or reinforcing the local medical infrastructure if it has been depleted or interrupted. This column is derived from the pharmaceutical and patient treatment caches specified by HHS for their DMATs.

Local and/or state medical authorities must be involved in adapting this list for use in various jurisdictions, and for developing protocols governing use of the items on the list.

Pharmaceuticals

SEL 2002 Item Number	Item	Chemical Incident	Biological Incident/P.H. Emergency	Radiological/ Nuclear Incident	Explosive Incidents	Medical Support for Prolonged Operations	EMS Standard Supplies & Equipment Augmented for Surge Capacity	Disaster Medical Equipment & Supplies
06PH-00-1MAI	Auto-Injector, Mark 1	■			■			
06PH-00-ACET	Acetaminophin				■	■		■
06PH-00-ADEN	Adenosine					■	■	■
06PH-00-ALBU	Albuterol	■				■	■	■
06PH-00-AMIO	Amioderone					■	■	■
06PH-00-AMNI	Amyl Nitrite	■					■	■
06PH-00-AMOX	Amoxicillin		■			■		■
06PH-00-ANTA	Antacids (Generic)	■				■		■
06PH-00-ASA	ASA					■	■	■
06PH-00-ATSF	Atropine Sulfate	■			■		■	■
06PH-00-ATVT	Atrovent	■				■	■	■
06PH-00-BCLM	Beclomethasone					■		■
06PH-00-BISM	Bismuth Products						■	■
06PH-00-BUTO	Butorphanol Injection					■		■
06PH-00-CACL	Calcium Chloride	■					■	■
06PH-00-CALG	Calcium Gluconate	■				■	■	■
06PH-00-CHAR	Charcoal, Activated						■	■
06PH-00-CHLO	Chloramphenicol		■					■
06PH-00-CPRO	Ciprofloxacin		■			■		■
06PH-00-CYKT	Cyanide Antidote Kit	■			■		■	■
06PH-00-DEXT	Dextrose, all concentrations						■	■
06PH-00-DIAZ	Diazepam, all forms	■			■	■	■	■
06PH-00-DIPH	Diphenhydramine					■	■	■
06PH-00-DOPA	Dopamine						■	■
06PH-00-DOXY	Doxycycline		■			■		■
06PH-00-DPTA	DPTA (Chelater)			■				
06PH-00-ELEC	Electrolyte Replacement Fluid, Oral		■		■	■		■
06PH-00-ENAL	Enalapril							■
06PH-00-EPIP	Epinephrine, all concentrations						■	■
06PH-00-ERYT	Erythromycin, all forms							■
06PH-00-FOSP	Fosphenytoin	■						■
06PH-00-FURO	Furosemide						■	■
06PH-00-GENT	Gentamycin		■					■

06PH-00-GLUC	Glucagon						■	■
06PH-00-GRAN	Granisetron			■				
06PH-00-IBUP	Ibuprofen				■	■		■
06PH-00-KETO	Ketorolac					■		■
06PH-00-LIDO	Lidocaine, all concentrations				■	■	■	■
06PH-00-LOPE	Loperamide					■		■
06PH-00-LORA	Lorazepam	■				■	■	■
06PH-00-MASU	Magnesium Sulfate						■	■
06PH-00-METB	Methylene Blue	■						
06PH-00-METP	Methylprednisolone					■	■	■
06PH-00-MOSU	Morphine Sulfate	■			■	■	■	■
06PH-00-NALX	Naloxone						■	■
06PH-00-NTRO	Nitroglycerin, all forms						■	■
06PH-00-OXYG	Oxygen	■	■	■	■	■	■	■
06PH-00-PHNG	Phenergan	■	■			■	■	■
06PH-00-PHNT	Phenotoin	■						■
06PH-00-POLY	Polysporin Ointment				■	■	■	■
06PH-00-POTI	Potassium Iodide			■				■
06PH-00-PRAL	Pralidoxime Chloride (2-PAM/ Protopam)	■						
06PH-00-PRUS	Prussian Blue			■				
06PH-00-RIBA	Ribavirin		■					■
06PH-00-RIMA	Rimantadine		■					■
06PH-00-RING	Ringers Solution, Lactated				■		■	■
06PH-00-SALI	Saline Solution, all concentrations	■	■		■	■	■	■
06PH-00-SISU	Silver Sulfadiazine Cream					■		■
06PH-00-SOBI	Sodium Bicarbonate	■					■	■
06PH-00-SOTH	Sodium Thiosulfate	■					■	■
06PH-00-STMY	Streptomycin		■					■
06PH-00-TCOP	Tetracaine Ophthalmic	■				■		■
06PH-00-THEO	Theophylline						■	■
06PH-00-THIA	Thiamine						■	■
06PH-00-TRIM	Trimethoprim/ sulphamethoxazole		■			■		■
06PH-00-VRSD	Versed				■	■	■	■
06PH-00-WATR	Water, Sterile	■	■	■	■	■	■	■

Medical Equipment

SEL 2002 Item Number	Item	Chemical Incident	Biological Incident/P.H. Emergency	Radiological/ Nuclear Incident	Explosive Incidents	Medical Support for Prolonged Operations	EMS Standard Supplies & Equipment Augmented for Surge Capacity	Disaster Medical Equipment & Supplies
06ME-00-ADMN	Equipment, Administrative to support medical operations	■	■	■	■	■	■	■
06ME-00-AWNG	Equipment, Airway Management, Durable, Basic & Advanced	■	■	■	■	■	■	■
06ME-00-BAGM	Bag/Kit/Pack, Medical				■		■	■
06ME-00-BATT	Batteries, biomedical and support systems						■	■
06ME-00-BPSL	Equipment, Blood Pressure, all types/ sizes				■		■	■
06ME-00-CSIM	Equipment, Training/ Casualty Simulation	■	■	■	■	■	■	■
06ME-00-DEAE	Defibrillator, Automated External						■	■
06ME-00-DEMP	Defibrillator/Cardiac Monitors/Pacing						■	■
06ME-00-GLUM	Meters, Glucose						■	■
06ME-00-MCIK	MCI Organizational Equipment/Kits	■	■	■	■	■	■	■
06ME-00-OTOP	Otoscope/ Ophthalmoscope					■		■
06ME-00-OXYE	Equipment, Oxygen , durable (i.e., cylinders, regulators, manifolds, etc.)				■		■	■
06ME-00-POXI	Oximeters, Pulse				■		■	■
06ME-00-SHEL	Shelter, Medical				■	■		■
06ME-00-SPIN	Equipment, Spinal Immobilization (i.e., backboards)				■		■	■
06ME-00-SPLT	Splints, durable, all types				■		■	■
06ME-00-STET	Stethoscope				■		■	■
06ME-00-SUCT	Equipment, Suction Units	■	■	■	■	■	■	■

06ME-00-THER	Thermometer, all types		■			■	■	■
06ME-00-VENT	Ventilators, non-disposable	■	■		■	■	■	■
06ME-01-COTS	Devices, Patient Movement, Cots				■		■	■
06ME-01-GURN	Devices, Patient Movement, Gurneys				■		■	■
06ME-01-LITR	Devices, Patient Movement, Litters/Stretchers				■		■	■

Medical Supplies

SEL 2002 Item Number	Item	Chemical Incident	Biological Incident/P.H. Emergency	Radiological/ Nuclear Incident	Explosive Incidents	Medical Support for Prolonged Operations	EMS Standard Supplies & Equipment Augmented for Surge Capacity	Disaster Medical Equipment & Supplies
06MS-00-ADMN	Supplies, Administrative, to support medical operations	■	■	■	■	■	■	■
06MS-00-ALPP	Pads, Alcohol Prep	■	■	■	■	■	■	■
06MS-00-AWMG	Supplies, Airway Management, Basic & Advanced	■	■	■	■	■	■	■
06MS-00-BAGB	Bag, Body, Heavy-Duty	■	■	■	■	■	■	■
06MS-00-BAGH	Bag, Biohazard				■		■	■
06MS-00-BAND	Bandages and Dressings, Sterile, all types, sizes				■		■	■
06MS-00-BATT	Batteries, assorted sizes	■	■	■		■	■	■
06MS-00-BIOD	Supplies, Biohazard Disposal				■		■	■
06MS-00-BITE	Block, Bite	■	■	■	■	■	■	■
06MS-00-DSIN	Supplies, Disinfectant				■		■	■
06MS-00-GLVN	Gloves, Biomedical, non-sterile				■		■	■
06MS-00-GLVS	Gloves, Biomedical, sterile				■	■	■	■
06MS-00-HYGP	Supplies, Personal Hygiene					■		■

06MS-00-SYRC	Syringe, Cartridge Injector Device				■		■	■
06MS-00-SYRG	Syringe, assorted sizes with or without needles				■		■	■
06MS-00-TAAS	Tape, Adhesive, assorted sizes				■		■	■
06MS-00-TNDP	Depressor, Tongue						■	■
06MS-00-TTAG	Tags and supplies, Triage	■	■	■	■	■	■	■
06MS-00-VENT	Ventilator, Disposable	■			■		■	■
06MS-01-KDEB	Kit, Debridement, and supplies				■	■		■
06MS-01-KTOB	Kit, Obstetrical						■	■
06MS-01-THOR	Kit, Thoracostomy and supplies				■		■	■

Appendix A

The Strategic Plan for Developing a Suite of CBRNE Protective Equipment Standards

Executive Summary

A common suite of First Responder equipment standards is needed to establish minimum performance and interoperability requirements for Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) equipment used by local, state, and federal First Responders to acts of terrorism and CBRNE incidents. Such standards, and the associated requirements and test protocols, serve multiple purposes including: 1) establishing baseline capabilities and limitations for currently available equipment, 2) guiding production and technological developments by manufacturers and designers, and 3) guiding equipment procurement decisions by the public safety and health communities. This document presents the strategy and process within the InterAgency Board (IAB) for Equipment Standardization and InterOperability for identifying, adopting, modifying, and developing CBRNE equipment standards. The priorities for developing standards will be established and periodically reviewed by the IAB Standards Coordination Committee (SCC). It does not address the specifics of schedules, resources, or those standardization processes that are agency and organization-specific. It is relevant to note that no such suite of CBRNE equipment standards exists today, and it is a goal of the IAB to remedy this shortcoming.

The CBRNE Equipment Standards process will be accomplished in two phases – a “Preparation Phase” and an “Implementation Phase.” During the Preparation Phase, requirements for standards will be identified from local, state, and federal First Responder functional and operational equipment requirements. These equipment requirements will be compared to existing standards to determine if they can be adopted into the CBRNE Equipment Standards Suite, if modifications are required, or if gaps exist that require new standards to be developed. During the Implementation Phase, the equipment SubGroups will recommend the adoption, modification, and development of standards for incorporation into the CBRNE Equipment Standards Suite. Gaps in standards will be presented to sponsoring agencies and organizations. A review process will be established and managed by the SCC to periodically validate the Suite and all incorporated standards.

The National Institute of Standards and Technology, Office of Law Enforcement Standards (NIST/OLES), as the executive agent for the SCC, will implement and administer the CBRNE Equipment Standards Suite repository, to include promulgation where appropriate. Implementation of this suite of standards is expected to be a multi-year process. In the interim, to address the user communities’ needs for CBRNE equipment information, NIST/OLES, on behalf of the SCC, will publish and administer a First Responder equipment set of guides to assist First Responder agencies in making informed procurement decisions.

1.0 Purpose

A common suite of CBRNE equipment standards is necessary to ensure compliance with minimum requirements for performance, commonality and interoperability of equipment used by local, state, and federal First

Responders in the public safety and health communities. Such standards, as well as the specifications and test protocols that evolve from them, are needed to guide the efforts of the manufactures and equipment developers; and to serve as a guide for informed procurement decisions by criminal justice, medical/public health and public safety agencies. The phrase “public safety and health communities” includes law enforcement, fire fighters, HAZMAT, emergency medical and other related agencies that consist of the first elements to respond to CBRNE incidents or attacks, and also pertains to organizations that are involved in the mitigation and recovery phases of such attacks. This document describes the strategy and process used to develop that common CBRNE Equipment Standards Suite. It is also the action plan for the CBRNE Equipment Standards Project and identifies the tasks required to implement a CBRNE Equipment Standards Suite. It does not address the specifics of schedules, resources, or those standardization processes that are agency-specific. Those remain to be developed within the context of this strategic plan.

The IAB Standards Coordination Committee (SCC) will establish the prioritized order for developing or adopting standards, and will periodically review and revise the prioritization as requirements change or as standards are implemented.

2.0 Goals and Objective

2.1 Goal of the CBRNE Equipment Standards Project – The goal of the CBRNE Equipment Standards Project is to enhance public safety and health by defining and promulgating a set of standards for CBRNE equipment that ensures minimum performance, quality, reliability and that are accepted by public safety and health communities. This suite of standards will be disseminated to the local, state, and federal public safety and health communities to make certain informed equipment procurement and to guide manufacturers, developers, and the test-and-evaluation community to ensure product compliance.

2.2 Objective of the CBRNE Equipment Standards Project – The objective of the CBRNE Equipment Standards Project is to facilitate the adoption of standards that can be used by local, state, and federal public safety and health communities. In order to accomplish this, strong working relationships must be established with the public safety and health communities, and the communities’ representatives must play a key and integral role in all facets of the standards process. Further, the project must use the approaches, standards, specifications, etc., which already exist within Standards Development Organizations (SDOs), Standards-Related Organizations (SROs), and Standards Enforcement Organizations (SEOs) to the greatest extent possible. This project will not reinvent work previously done or provide redundant products, but rather will take advantage of all available information and standards that may be applicable. This project will conform to the regulatory statutes and guidance governing the SDOs, SROs, and SEOs.

3.0 Overview of the CBRNE Equipment Standards Suite Development Process

The standards development process consists of two distinct phases — the “Preparation Phase” and the “Implementation Phase.” During the preparation phase, functional requirements are defined and existing standards are surveyed to determine if they address requirements. During the implementation phase, gaps in the existing standards will be addressed. The implementation of a suite of standards is time-consuming and some interim steps will be taken to provide manufacturers, developers and procurement officials with guidance for immediate action.

3.1 Preparation – During the Preparation Phase, standards will be identified by determining the First Responder functional equipment requirements and comparing them against existing standards. These questions must be answered: 1) if existing standards can be adopted into the CBRNE Equipment Standards Suite; 2) if they need to be modified before being adopted; or, 3) if new standards need to be developed. Functional requirements are derived in equal measure from an assessment of the threat(s) with which First Responders will have to deal and the operational practices and procedures (i.e., how they do business) that they will bring to bear to deal with that threat. Users will be involved in every stage of this process, providing initial input and feedback on final products.

3.1.1 Identification of the Threat – The first step in the standards development process will be a threat assessment. The threat assessment identifies the most likely agents to be encountered in a CBRNE terrorism situation, the scenarios in which these agents might be used by terrorists, and the likely methods of agent delivery in a civilian environment. Since the best information is likely to be held by national security organizations and is apt to be classified, it will, of necessity, be restricted to a limited number of people who have the proper security clearances. The second step of the threat assessment will then involve situations where simulated releases can be conducted using simulants to develop the appropriate “models” and response methods, while working with trained public safety and medical teams.

3.1.2 Identification of Operational Requirements – This step involves collection of detailed information regarding the functional and operational requirements of CBRNE equipment based on user needs, practices and procedures; i.e., how they go about their business. While identification of the threat defines the nature of the agent(s) and the design parameters for the apparatus, practices and procedures will define the size and weight of that apparatus, how long it needs to function, and decontamination procedures. The information will be summarized and catalogued by equipment type.

3.1.3 Survey and Assessment of Existing Standards

3.1.3.1 A comprehensive survey of existing standards that are relevant to CBRNE equipment will be performed to identify if there

are any that can be used without any modification, as well as those that can be used with some modification. The SCC will develop a review and approval procedure for both adoption and modification of existing standards. The procedure must take into account the agency-specific requirements and procedures of organizations currently involved in the development of standards.

3.1.3.2 In instances where the SCC review of existing standards has determined that a particular standard(s) not be adopted in whole or in part, it shall issue a report to the IAB, documenting the limitations and/or shortcomings of the existing standard(s).

3.1.3.3 Recommendations for adoption, modification and adoption, as well as the development of new standards will be recorded for action during the implementation phase.

3.1.3.4 Implementation - During the implementation phase, recommendations resulting from the preparation phase will be carried out through coordination with appropriate SDOs, SROs, and SEOs to assist the adoption, modification, and development of standards for the CBRNE Equipment Standards Suite. A periodic review of all standards will be implemented.

3.2 Adoption of Existing Standards - Standards that require no modification will be added 'as is' to the CBRNE Equipment Standards Suite. The adoption and inclusion of a standard into the Suite will follow the review and approval process as developed by the SCC. The appropriate SDOs, SROs, and SEOs will be notified. These standards will be disseminated to the state, local, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.

3.2.1 Modification of Existing Standards - If the SCC determines that an existing standard needs to be modified, the review process and discussion of the limitations will be documented. Modification to standards will be coordinated with the appropriate SDOs, SROs, and SEOs for implementation. In cases where existing standards cannot be modified to meet the specific needs of the IAB, then a new standard will be developed as discussed in paragraph 3.2.2. These modified standards will be disseminated to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.

3.2.2 Development of New Standards - This type of document will need the most time and resources to develop as well as the most extensive review process to ensure consensus. Where applicable, the need for new standards will be coordinated with the cognizant SDOs, SROs, and SEOs for development. If the appropriate SDOs, SROs, and/or SEOs cannot be convinced to modify a standard, or if no cognizant SDO/SRO/SEO can be found to develop a new standard, then the identified requirement will be addressed through the issuance of a voluntary standard(s). These standards will be issued as National Institute of Justice (NIJ) standards and

disseminated to local, state, and federal public safety and health communities, manufacturers, developers, and the test-and-evaluation community.

3.2.3 Methodology for Reviewing Standards - A process will be put in place so that the standards included in the CBRNE Equipment Standards Suite will be reviewed in light of evolving threats, evolving technologies, user practices, and user procedures on a biannual, periodic basis, to:

- Reaffirm still useful standards.
- Recall obsolete standards once a review finds a document obsolete.
- Provide notification when any standards incorporated into the CBRNE Equipment Standards Suite are updated, modified, revised, replaced, or superseded by the SDO or SRO and when exceptions or waivers are granted by SEOs.
- Disseminate this information to the local, state, and federal public safety and health communities, manufacturers, developers, and the test-and-evaluation community.

3.3 Interim Steps - A First Responder equipment compendium and set of guides will be developed and published to assist First Responder agencies in making informed procurement decisions prior to the implementation of a CBRNE Equipment Standards Suite. These documents will catalogue existing CBRNE equipment and their characteristics and contain test data where found. Interim voluntary standards and/or comparative evaluation protocols for testing of CBRNE equipment will also be developed and implemented for selected categories of equipment and threats.

4.0 Organization and Responsibilities

4.1 The key organizations within the IAB that facilitate the development of the CBRNE Equipment Standards Suite are the Equipment SubGroups and the Standards Coordination Committee. The Equipment SubGroups take the lead for developing the functional requirements for equipment in their commodity areas in close collaboration with the user community. They also identify and recommend to the SCC existing standards for direct incorporation into the CBRNE Equipment Standards Suite, standards that could be incorporated with modification, and new standards that need to be developed. The SCC, which includes the chairs of the Equipment SubGroups, will manage this process and be responsible for implementation and management of the suite.

Standards Coordination Committee (SCC)

4.2.1 The SCC is a panel of representatives from various federal and private standards organizations, the Co-chairs of the equipment SubGroups and the co-chairs of the Science and Technology Committee. The SCC is responsible for coordinating CBRNE Equipment Standards projects of the IAB SubGroups with other

organizations and enforcing authorities including, but not limited to, National Institute for Occupational Safety and Health (NIOSH), National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), National Institute of Justice (NIJ), Department of Energy (DOE), Federal Emergency Management Agency (FEMA), Environmental Protection Agency (EPA), and the Office of Law Enforcement Standards (OLES) of the National Institute of Standards and Technology (NIST). As the various equipment SubGroups of the IAB determine minimum performance, quality, reliability, and other qualification requirements for their respective commodities, the SCC, representing regulatory, consensus, and voluntary standards organizations, will endeavor to create national synchronization by incorporating the requirements into their standards. The SCC will also review the development of qualification requirements by other SubGroups to:

- Alert SubGroups and request reconciliation when contradictory requirements for complementary equipment are proposed,
- Alert SubGroups when proposed requirements are contradictory to federal or state regulations,
- Raise attention to similar or additional qualification requirements under internal development within the regulatory, consensus, and voluntary standards organizations, and
- Provide technical and non-technical advice for improvements.

4.2.2 In the absence of appropriate standards for equipment deployed by emergency responders, the SubGroup members will serve as liaisons to their respective organizations to encourage development and harmonization of standards. The Office of Law Enforcement Standards at the National Institute of Standards and Technology (NIST/OLES), as the executive agent for the SCC, will implement, administer, and disseminate the CBRNE Equipment Standards Suite.

4.3 Equipment SubGroups - The IAB established 4 equipment SubGroups. These SubGroups are composed of subject matter experts that address domestic preparedness equipment, systems, and protection issues related to a specific commodity area. The 4 equipment SubGroups are: 1) the Medical SubGroup, 2) the Personal Protective and Operational Equipment SubGroup, 3) the Detection and Decontamination SubGroup, and 4) the InterOperable Communications and Information Systems SubGroup. Each SubGroup has two co-chairs, one from the SubGroup's local and state ranks, and one from federal or private ranks. The role of each SubGroup is to maintain and update its portion of the Standardized Equipment List and address the ways technology can support CBRNE response concerns. Additionally, the SubGroups take the lead in developing the functional requirements for equipment and establish priorities for standards within their respective commodity areas. They identify existing standards that may be incorporated into the CBRNE Equipment Standards Suite without change, standards that may be incorporated into the Standards Suite after modification, and recommend

areas for development of new standards.

4.4 The Science and Technology Committee (STC) - The mission of the STC is to identify interagency (local, state, and federal) First Responder research and development (R&D) requirements and innovative technologies (fieldable in the next six months to five years) that address CBRNE detection, individual and collective protection, medical support, decontamination, communications systems, information technology, and miscellaneous operational support. The STC consists of subject matter experts in the R&D field, the co-chairs of the equipment SubGroups and the co-chairs of the SCC.

5.0 Execution

5.1 The CBRNE Equipment Standards Suite will be developed, promulgated and administered as outlined above. The work will be conducted during regularly scheduled meetings of the IAB, specially convened SubGroup sessions, and by members of the SubGroups as directed by the SubGroup chairs.

5.2 Standards Coordination Committee - The SCC will solicit input from the equipment SubGroups, consolidate input, and develop priorities for subsequent efforts, as outlined in section 3.0. The SCC will develop, maintain, and publish the list of IAB adopted CBRNE Protective Equipment standards, and develop a schedule for periodic review of these standards.

5.3 Equipment SubGroups - The equipment SubGroups will perform the steps outlined in section 3.0 according to a schedule developed by the Standards Coordination Committee.

5.4 NIST/OLES - NIST/OLES serves as the executive agent for the SCC, and implements, administers and promulgates the CBRNE Equipment Standards Suite repository as appropriate. NIST/OLES will publish, administer and maintain a set of First Responder CBRNE equipment guides. These guides will catalogue existing CBRNE equipment and their characteristics and will contain test data where available.

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