

## APPENDIX H

(From the FIRESCOPE Hazardous Materials Standardized Equipment List)

### Hazardous Materials Company Types Explanation of Components

The Criteria column explains the overall objective or minimum requirements for each component. The Performance column explains the specific level of minimum performance to be demonstrated by that type of company. All performance levels for the Type 3 company are the minimum standard. A Type 2 company must, in addition to the Type 3 level of performance, meet all Type 2 performances. A Type 1 - company must, in addition to the Type 2 and Type 3 level of performance, meet all Type 1 performances.

Component	Criteria	SEL	Type	Required Performance
<b>Field-Testing</b>	The identification of chemical substances using a variety of sources, which may include: Printed and electronic reference resources, material safety data sheets, field testing kits, specific chemical testing kits, chemical testing strips, and data equated from detection devices and air monitoring sources that should assist in identifying associated chemical and physical properties.	1.2	3	Known Chemicals
		1.2	2	Unknown Chemicals
		1.2 and 1.5	1	Known or Suspect WMD (Chem / Bio) Substances (powder, liquid, vapor)
<b>Air Monitoring</b>	The use of electronic devices to detect the presence of known or unknown gases or vapors. The basics begin with the ability to provide the standard confined space readings (oxygen (%); flammable atmosphere (LEL); carbon monoxide (ppm), and hydrogen sulfide (ppm). Advanced detection and monitoring may include instruments that differentiate between two or more flammable vapors, and may directly identify by name a specific flammable or toxic vapor. Identify toxic substances and aromatic hydrocarbons, in parts-per-million (ppm) readings. The employment of other instruments such as WMD (Chem / Bio) detection instruments.	2.1	3	Combustible Vapors; Oxygen Percent, Carbon Monoxide; Hydrogen Sulfide
		2.2 and 2.3	2	Specialty gas capability; Toxic vapor detection in ppm; Complex liquid hydrocarbon vapor
		2.4,	1	WMD (Chem / Bio) liquid, powder, vapor
<b>Sampling</b>	The three criteria tiers are known chemicals, unknown chemicals, and WMD (Chem / Bio) substances. Standard evidence collection protocols required for each include: Capturing and collection, containerizing and labeling, preparation for transportation, evidence collection and lab analysis.	3.1 and 3.2	3	Known Chemicals
			2	Unknown Chemicals
			1	WMD (Chem / Bio)
<b>Radiation Monitoring / Detection</b>	The application of devices specifically for the detection of radiation sources. This process includes: Being able to differentiate between types of radiation, interpret readings from the device, employ a field monitoring plan to conduct geographical survey search of suspect radiological source (s) or contamination spread, ability to conduct whole body hygiene survey, insure all members of survey teams are equipped with accumulative dose reading instruments (dosimeters).	4.1	3	Beta / Gamma Detection Geographical Survey Hygiene Survey Dosimetry
			2	Same as Type III
			1	Alpha / Radionuclide Detection
<b>Protective Clothing:</b>  Ensemble	Chemical protective clothing (CPC) includes complete ensembles (suit, boots, gloves), and may incorporate various configurations (encapsulating, non-encapsulating, jumpsuit, multi-piece) depending upon the level of protection needed. Levels of protection are: Vapor Protective, Flash Fire Vapor Protective, WMD (Chem / Bio) Vapor Protective, Liquid-Splash Protective, and (Chem / Bio) Liquid Splash Protective. All levels of protection must be compliant with NFPA standards # 1991 and # 1992. Flash fire protection and (Chem / Bio) protection are options within each NFPA standard that can be added to any basic 1991 or 1992 suit.	5.2	3	Liquid-Splash Protective
			2	Vapor Protective Flash Fire Vapor Protective
			1	WMD (Chem / Bio) Vapor Protective WMD (Chem / Bio) Liquid Splash Protective
<b>Protective Clothing:</b>  Gloves and Boots	In addition to chemical protective gloves that are part of the CPC ensemble, sufficient inventory of NFPA compliant gloves and boots must be kept for CPC ensemble replacement purposes. Additionally, a variety of specialty gloves shall be considered (Cryogenic, Ultra-High temperature).	6.1	3	NFPA Compliant Glove and Boot Replacement inventory
			2	High Temperature Protective Gloves Cryogenic Protective Gloves
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<b>Technical Reference</b>	Access to and use of various databases, chemical substance data repositories, and other guidelines and material safety data sheets, either in print format, electronic format, stand-alone computer programs, or data available via telecommunications. This includes the interpretation of data collected from electronic devices and chemical testing procedures.	7.1, 7.2	3	Printed and Electronic
		7.3	2	Plume Air Modeling; Map Overlays
		7.1; 7.2	1	WMD (Chem / Bio)
<b>Special Capabilities</b>	Additional capabilities that would augment a particular level or type of company, and would provide beneficial assets utilizing specialty equipment. Significant categories that would augment functions are the inclusion of night vision capabilities, heat sensing or heat monitoring equipment, and digital photo and video		3	-0-
		8.1	2	Heat Sensing, Night Vision, Digital Photo
		8.1	1	Digital Video
<b>Intervention</b>	Employment of mechanical means of intervention and control such as plugging, patching, off-loading, and tank stabilization. Environmental means such as absorption, dams, dykes and booms. Chemical means such as neutralization and encapsulation. Intermediate capabilities should include large leak intervention. Advanced capabilities should include ability to intervene and control incidents involving WMD (Chem / Bio) substances.	9.2	3	Diking, Damming, Absorption
		9.1, 9.3	2	Neutralization, Plugging, Patching; Large Leak Intervention
			1	WMD (Chem / Bio) Spill Containment
<b>Decontamination: Primary</b>	Each company type must be capable of providing primary decontamination for members of an entry team. Primary decontamination must be appropriate for the typing level of that team. A Type 3 company must be capable of providing DECON for known chemical substances for not less than liquid splash contact. Type 2 company must be capable of providing DECON for unknown chemical substances for not less than vapor threat contact. Type 1 company must be capable of providing DECON for unknown chemicals as well as WMD (Chem / Bio) liquid and vapor threat contact.	10.1 10.2	3	Known Chemicals
		10.1 10.2	2	Unknown Chemicals
			1	WMD (Chem / Bio)
<b>Communications</b>	Personnel utilizing chemical, vapor or liquid splash protective clothing, shall utilize and maintain communications of sufficient type and quality as to provide for safe communications between the entry team leader, members of the team, and one another. Other communication devices include: Cellular phones. Intermediate and advanced capability should include wireless transmittal for the purpose of verbal, data transfer, and imagery exchange, and access to the Internet.	11.1 11.2	3	In-Suit Comm.; Cell Phone
		7.4 11.2	2	Wireless Fax, Copy, WEB Access
		7.4 11.2	1	Wireless Fax, Copy, WEB Access
<b>Respiratory Protection</b>	Self-contained breathing apparatus (SCBA) must be provided for each member of the team. To augment advanced, large scale, and/or long-term intervention activities, utilization of an umbilical air system should be considered. This also can be used to augment breathing air, suit cooling, and work in confined spaces. Air purifying respirators (APR) or powered air purifying respirators (PAPR) certified by NIOSH for (Chem / Bio) threat atmospheres should be considered for advanced capabilities.	12.1	3	SCBA
		12.1	2	SCBA
		12.1 12.2	1	SCBA and APR for (Chem / Bio)
<b>Personnel: Training &amp; Staffing</b>	All personnel of a Type III company must meet the hazardous materials training requirements for Technician in CCR Title 19, Section 2520. All personnel of a Type 2 and Type 1 company must meet the training requirements for Specialist in CCR Title 19, Section 2520. All personnel of a Type 1 company must further be trained to WMD (Chem / Bio) equivalent to the 16-hour CSTI curricula "Technician Specialist Terrorism". CGC 8574.19-21		3	HMT (160 Hour) – 5 personnel
			2	HMS (240 Hour) – 5 personnel
			1	HMS + (Chem / Bio) (16 Hour) - 7 personnel