

APPENDIX G

Hazardous Materials Company Types and Minimum Standards

This chart is also part of the Field Operations Guide (FOG)

Components	Type I	Type II	Type III
Field Testing	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Air Monitoring	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide
	Specialty Gases Hydrocarbon Liquid Vapors	Specialty Gases Hydrocarbon Liquid Vapors	
	WMD Chem / Bio		
Sampling: Capturing Labeling Evidence Collection	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Radiation Monitoring and Detection	Gamma	Gamma	Gamma
	Beta	Beta	
	Alpha; Radionuclide		
Chemical Protective Clothing: Ensembles	Liquid-Splash Protective	Liquid-Splash Protective	Liquid-Splash Protective
	Vapor Protective	Vapor Protective	
	Flash Fire Vapor Protective	Flash Fire Vapor Protective	
	WMD Chem / Bio Vapor Protective		
	WMD Chem / Bio Liquid Splash Protective		
Chemical Protective Clothing: Gloves - Boots	NFPA Compliant Replacement	NFPA Compliant Replacement	NFPA Compliant Replacement
	Hi-Temp. Protective Gloves Cryogenic Protective Gloves	Hi-Temp. Protective Gloves Cryogenic Protective Gloves	
	Radiation Protection Gloves		

Components	Type I	Type II	Type III
Technical Reference	Printed and Electronic	Printed and Electronic	Printed and Electronic
	Plume Air Modeling, Map Overlays	Plume Air Modeling, Map Overlays	
	WMD Chem / Bio Sources		
Special Capabilities	Heat Sensing	Heat Sensing	
	Night Vision	Night Vision	
	Digital Photo	Digital Photo	
	Digital Video		
Intervention	Diking, Damming, Absorption	Diking, Damming, Absorption	Diking, Damming, Absorption
	Liquid, Solid Leak Intervention	Liquid, Solid Leak Intervention	Liquid, Solid Leak Intervention
	Vapor Leak Intervention	Vapor Leak Intervention	
	Neutralization, Plugging, Patching	Neutralization, Plugging, Patching	
	WMD Chem / Bio Spill Containment		
Decontamination	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Communications	In-Suit	In-Suit	In-Suit
	Cell Phone	Cell Phone	Cell Phone
	Wireless Fax, Copy, Web Access	Wireless Fax, Copy, Web Access	
Respiratory Protection	SCBA	SCBA	SCBA
	Umbilical Air Support		
	APR or PAPR, WMD Chem / Bio Compliant		
Personnel Training & Staffing	Haz Mat Specialist ② WMD Chem / Bio ③ 7 ④	Haz Mat Specialist ② 5 ①	Haz Mat Technician ① 5 ④

- ① All company personnel must meet the hazardous materials training requirements for Technician in CCR Title 19, Section 2520
- ② All company personnel must meet the hazardous materials training requirements for Specialist in CCR Title 19, Section 2520
- ③ All company personnel must meet the training requirements for Hazardous Materials/Weapons of Mass Destruction: Terrorism for Technical/Specialist. Training shall, at a minimum, meet or be equivalent to the requirements found in Title 19 CCR 2520 (ff).
- ④ One company member must meet training requirements for Hazardous Materials/Weapons of Mass Destruction: Assistant Safety Officer. Training shall, at a minimum, meet or be equivalent to the requirements found in Title 19 CCR 2520 (r).

APPENDIX H

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 III company are the minimum standard. A Type II company must, in addition to the Type III level of performance, meet all Type II performances. A Type I - company must, in addition to the Type II and Type III level of performance, meet all Type I performances.

Component	Criteria	SEL	Type	Required Performance	
Field-Testing	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	III	Known Chemicals	
		1.2	II	Unknown Chemicals	
		1.2 and 1.5	I	Known or Suspect WMD (Chem / Bio) Substances (powder, liquid, vapor)	
Air Monitoring	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	III	Combustible Vapors; Oxygen Percent, Carbon Monoxide; Hydrogen Sulfide	
		2.2 and 2.3	II	Specialty gas capability; Toxic vapor detection in ppm; Complex liquid hydrocarbon vapor	
		2.4,	I	WMD (Chem / Bio) liquid, powder, vapor	
Sampling	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	III	Known Chemicals	
			II	Unknown Chemicals	
			I	WMD (Chem / Bio)	
Radiation Monitoring / Detection	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	III	Gamma Detection Geographical Survey Hygiene Survey Dosimetry	
			II	Alpha / Beta Detection	
			I	Radionuclide Detection	
Protective Clothing: 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	III	Liquid-Splash Protective	
			5.1	II	Vapor Protective Flash Fire Vapor Protective
				I	WMD (Chem / Bio) Vapor Protective WMD (Chem / Bio) Liquid Splash Protective
Protective Clothing: 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 temperatures, and Radiological gloves).	6.1	III	NFPA Compliant Glove and Boot Replacement inventory	
			II	High Temperature Protective Gloves Cryogenic Protective Gloves	
			I	Radiation Protective Gloves	

Technical Reference	Access to and use of various databases, chemical substance data depositories, 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	III	Printed and Electronic
		7.3	II	Plume Air Modeling; Map Overlays
		7.1; 7.2	I	WMD (Chem / Bio)
Special Capabilities	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		III	-0-
		8.1	II	Heat Sensing, Night Vision, Digital Photo
		8.1	I	Digital Video
Intervention	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	III	Diking, Damming, Absorption
		9.1, 9.3	II	Neutralization, Plugging, Patching; Large Leak Intervention
			I	WMD (Chem / Bio) Spill Containment
Decontamination: Responder	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 III company must be capable of providing DECON for known chemical substances for not less than liquid splash contact. Type II company must be capable of providing DECON for unknown chemical substances for not less than vapor threat contact. Type I 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	III	Known Chemicals
		10.1 10.2	II	Unknown Chemicals
			I	WMD (Chem / Bio)
Communications	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	III	In-Suit Comm.; Cell Phone
		7.4 11.2	II	Wireless Fax, Copy, WEB Access
		7.4 11.2	I	Wireless Fax, Copy, WEB Access
Respiratory Protection	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	III	SCBA
		12.1	II	SCBA
		12.1 12.2	I	SCBA and APR for (Chem / Bio)
Personnel: Training & Staffing	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 II and Type I company must meet the training requirements for Specialist in CCR Title 19, Section 2520. All personnel of a Type I company must further be trained to WMD (Chem / Bio) equivalent to the 24-hour CSTI curricula "Technician Specialist Terrorism". CGC 8574.19-21		III	HMT (160 Hour) – 5 personnel
			II	HMS (240 Hour) – 5 personnel
			I	HMS + (Chem / Bio) (24 Hour) – 7 personnel