

**Appendix C**

---

---

**LEVELS OF PROTECTION**



## Appendix C Levels of Protection<sup>1</sup>

Level of Protection	Equipment	Protection Provided	Should be used when:	Limiting Criteria
A	<p><b>Recommended:</b> Pressure-demand, full facepiece SCBA or pressure-demand, supplied-air respirator with escape SCBA</p> <p>Fully-encapsulated, chemical-resistant suit</p> <p>Inner chemical-resistant gloves</p> <p>Chemical-resistant safety boots/shoes</p> <p>Two-way radio communication</p> <p><b>Optional:</b> Cooling unit</p> <p>Coveralls</p> <p>Long cotton underwear</p> <p>Hard hat</p> <p>Disposable gloves and boot covers</p>	<p>The highest available level of respiratory, skin, and eye protection</p>	<p>The chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory systems based on:</p> <p>-measured (or potential for) high concentration of atmospheric vapors, gases, or particulates; or</p> <p>-site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the intact skin</p> <p>Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible</p> <p>Operations must be conducted in confined, poorly ventilated areas until the absence of conditions requiring Level A protection is determined</p>	<p>Fully-encapsulated suit; material must be compatible with the substances involved</p>

<sup>1</sup> Reprinted from NIOSH/OSHA/USCG/EPA 1985. *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. Washington, D.C.: Department of Health and Human Services.

**Appendix C (continued)**  
**Levels of Protection**

Level of Protection	Equipment	Protection Provided	Should be used when:	Limiting Criteria
<b>B</b>	<b>Recommended:</b>			
	Pressure-demand, full-facepiece SCBA or pressure-demand, supplied-air respirator with escape SCBA	The same level of respiratory protection, but less skin protection than Level A	The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves:	Use only when the vapor or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through intact skin
	Chemical-resistant clothing (overalls and long sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit)	It is the minimum level recommended for initial site entries until the hazards have been further identified	-atmosphere with IDLH concentrations of specific substances that do not represent a severe skin hazard; or	Use only when it is highly unlikely that the work being done will generate either high concentrations of vapors, gases, or particulates or splashes of material that will affect exposed skin
	Inner and outer chemical-resistant gloves		-atmosphere containing less than 19.5 percent oxygen	
	Chemical-resistant safety boots/shoes		Presence of incompletely identified vapors or gases is indicated by direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through intact skin	
	Hard hat			
	Two-way radio communications			
	<b>Optional:</b>			
	Coveralls			
	Disposable boot covers			
Face shield				
Long cotton underwear				

**Appendix C (continued)**  
**Levels of Protection**

Level of Protection	Equipment	Protection Provided	Should be used when:	Limiting Criteria	
<b>C</b>	<b>Recommended:</b>				
	Full-facepiece, air-purifying, canister-equipped respirator	No respiratory protection; minimal skin protection	The atmosphere contains no known hazard	This level should not be worn in the Exclusion Zone	
	Chemical-resistant clothing (overalls and long sleeved jacket: hooded, one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit)		Work functions preclude, splashes immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals	The atmosphere must contain at least 19.5 percent oxygen	
	Hard hat				
	<b>Optional:</b>				
	Gloves				
	Escape mask				
	Face shield				
	<b>D</b>	<b>Recommended:</b>			
		Coveralls	No respiratory protection; minimal skin protection	The atmosphere contains no known hazard	This level should not be worn in the Exclusion Zone
Safety boots/shoes			Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals	The atmosphere must contain at least 19.5 percent oxygen	
Safety glasses or chemical splash goggles					
Hard hat					
<b>Optional:</b>					
Gloves					
Escape mask					
Face Shield					

## Comments

---

The Agency for Toxic Substances and Disease Registry would greatly appreciate your comments and suggestions for improving future editions of this guidance document. Comments may be addressed to:

Scott V. Wright  
Emergency Response and Scientific Assessment Branch (MS E57)  
Agency for Toxic Substances and Disease Registry (ATSDR)  
1600 Clifton Road, N.E.  
Atlanta, GA 30333



