
Appendix D. Sample Decontamination Procedures for Three Typical Levels of Protection^a

F.S.O.P. No. 7

Process: DECONTAMINATION PROCEDURES

INTRODUCTION

- 1.1 The objective of these procedures is to minimize the risk of exposure to hazardous substances. These procedures were derived from the U.S. Environmental Protection Agency, Office of Emergency and Remedial Response's (OERR), "Interim Standard Operating Safety Guides (revised Sep. 82)". This version of the guides is in a format that is more appropriate for use in the field.
- 1.2 Protective equipment must be worn by personnel when response activities involve known or suspected hazardous substances. The procedures for decontaminating personnel upon leaving the contaminated area are addressed for each of the EPA, OERR designated levels of protection. The procedures given are for the maximum and minimum amount of decontamination used for each level of protection.
- 1.3 The maximum decontamination procedures for all levels of protection consist of specific activities at nineteen stations. Each station emphasizes an important aspect of decontamination. When establishing a decontamination line, each aspect should be incorporated separately or combined with other aspects into a procedure with fewer steps (such as the Minimum Decontamination Procedures).
- 1.4 Decontamination lines are site specific since they are dependent upon the types of contamination and the type of work activities on site. A cooling station is sometimes necessary within the decontamination line during hot weather. It is usually a location in a shaded area in which the wind can help to cool personnel. In addition, site conditions may permit the use of cooling devices such as cool water hose, ice packs, cool towels, etc. When the decontamination line is no longer required, contaminated wash and rinse solutions and contaminated articles must be contained and disposed of as hazardous wastes in compliance with state and federal regulations.

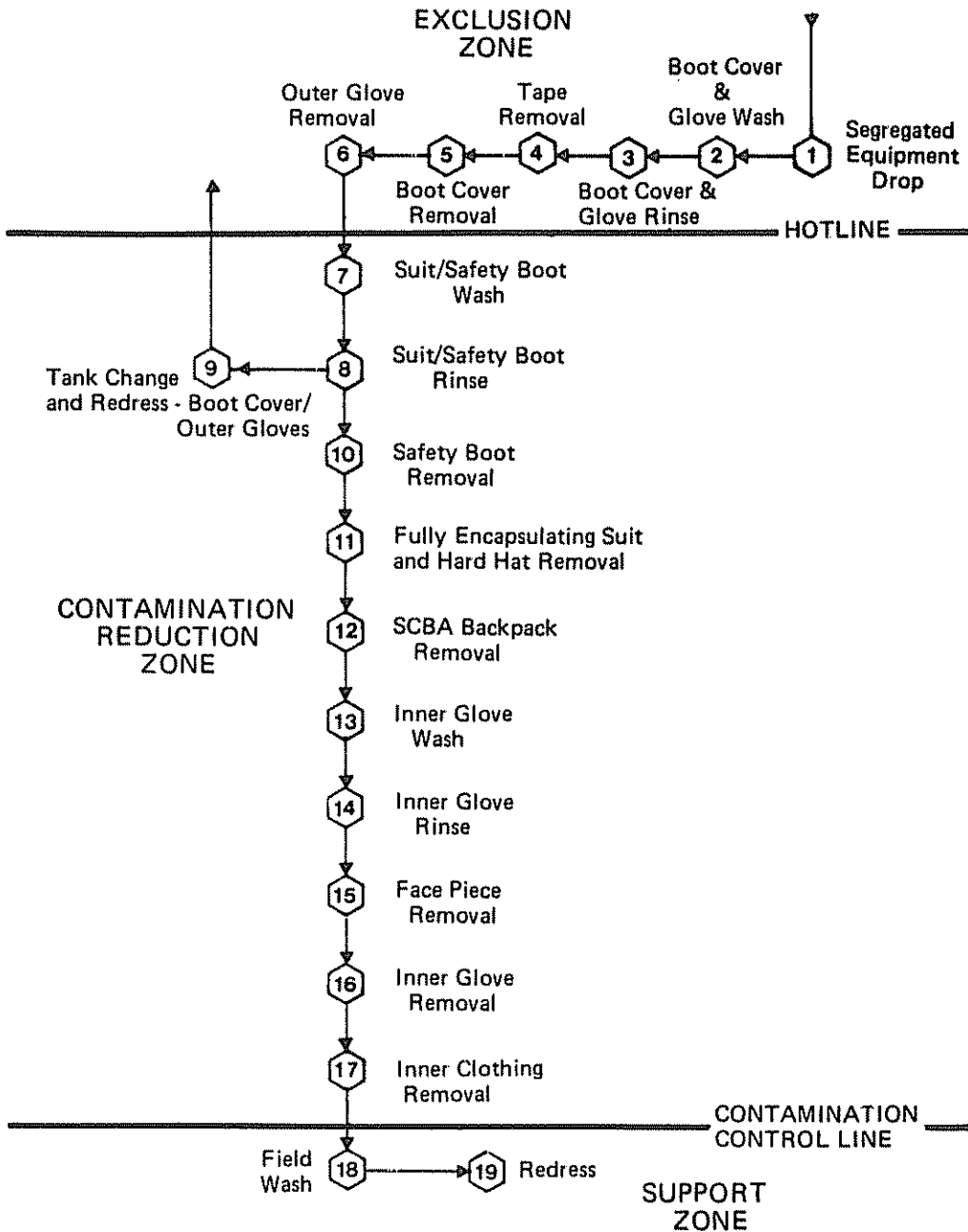
^a Source: Excerpted from *Field Standard Operating Procedures for the Decontamination of Response Personnel (FSOP 7)*. EPA Office of Emergency and Remedial Response, Hazardous Response Support Division, Washington, DC. January 1985.

F.S.O.P. No. 7

PROCESS DECON PROCEDURES

MAXIMUM DECONTAMINATION LAYOUT

LEVEL A PROTECTION

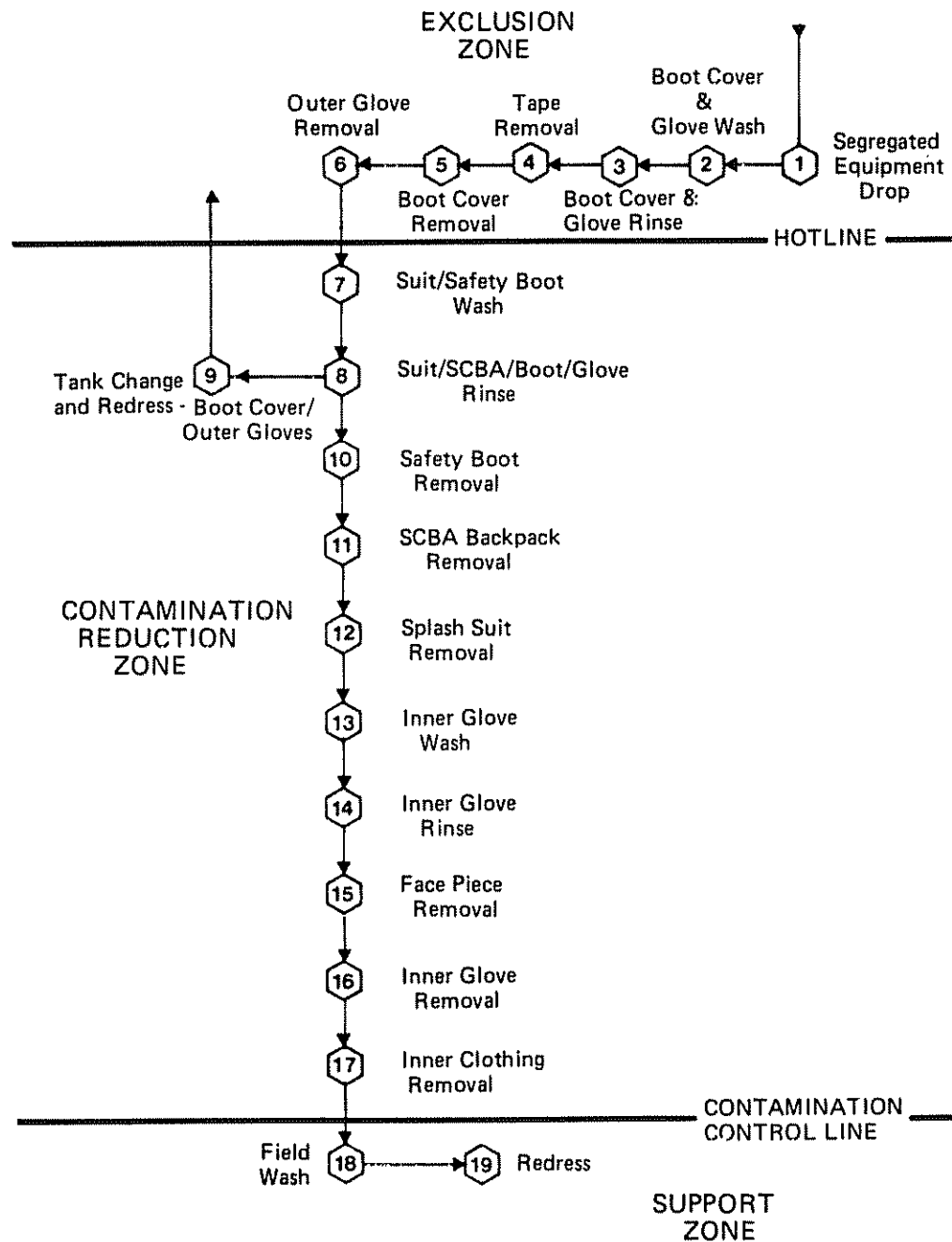


F.S.O.P. No. 7

PROCESS DECON PROCEDURES

MAXIMUM DECONTAMINATION LAYOUT

LEVEL B PROTECTION

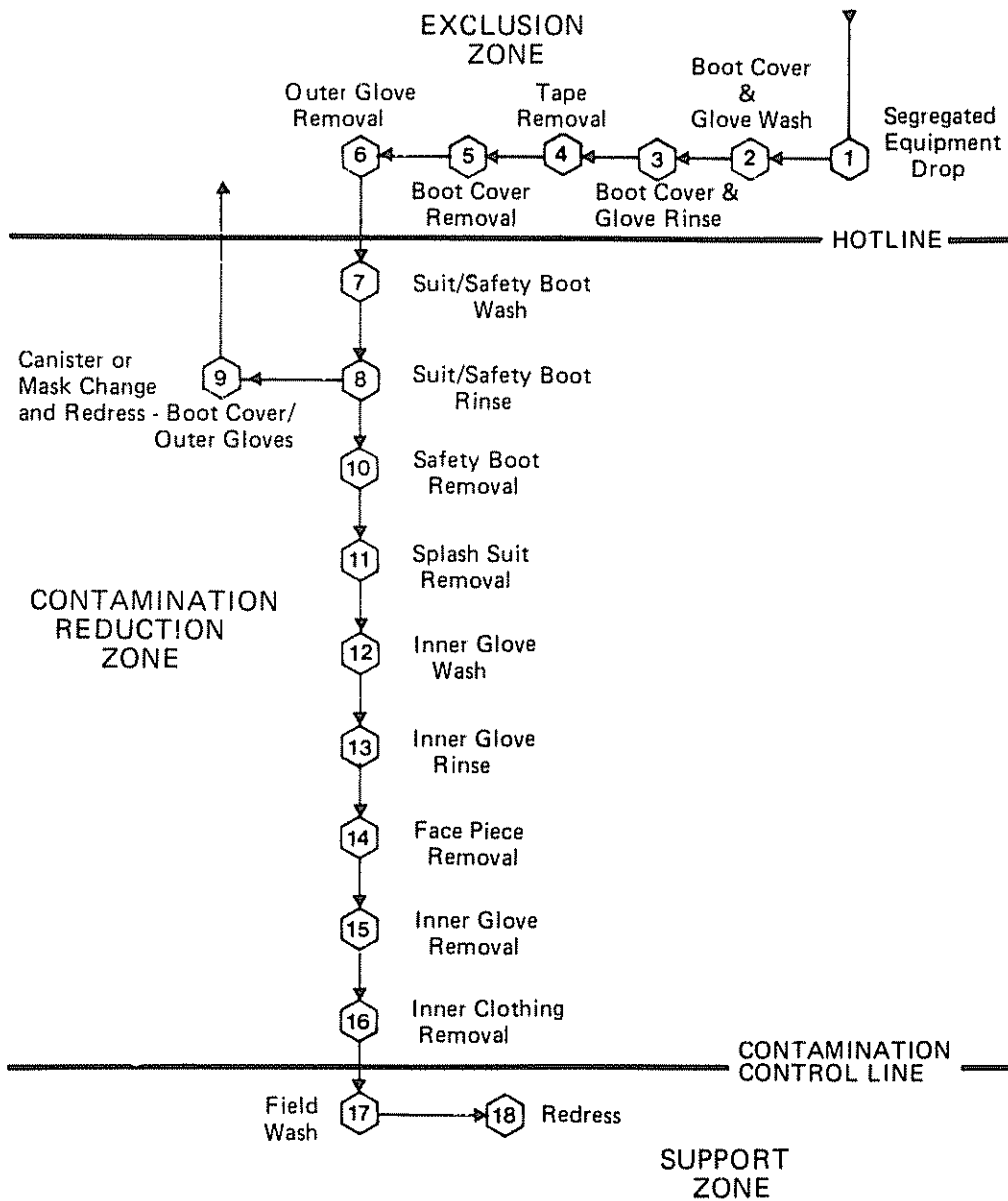


F.S.O.P. No. 7

PROCESS DECON PROCEDURES

MAXIMUM DECONTAMINATION LAYOUT

LEVEL C PROTECTION

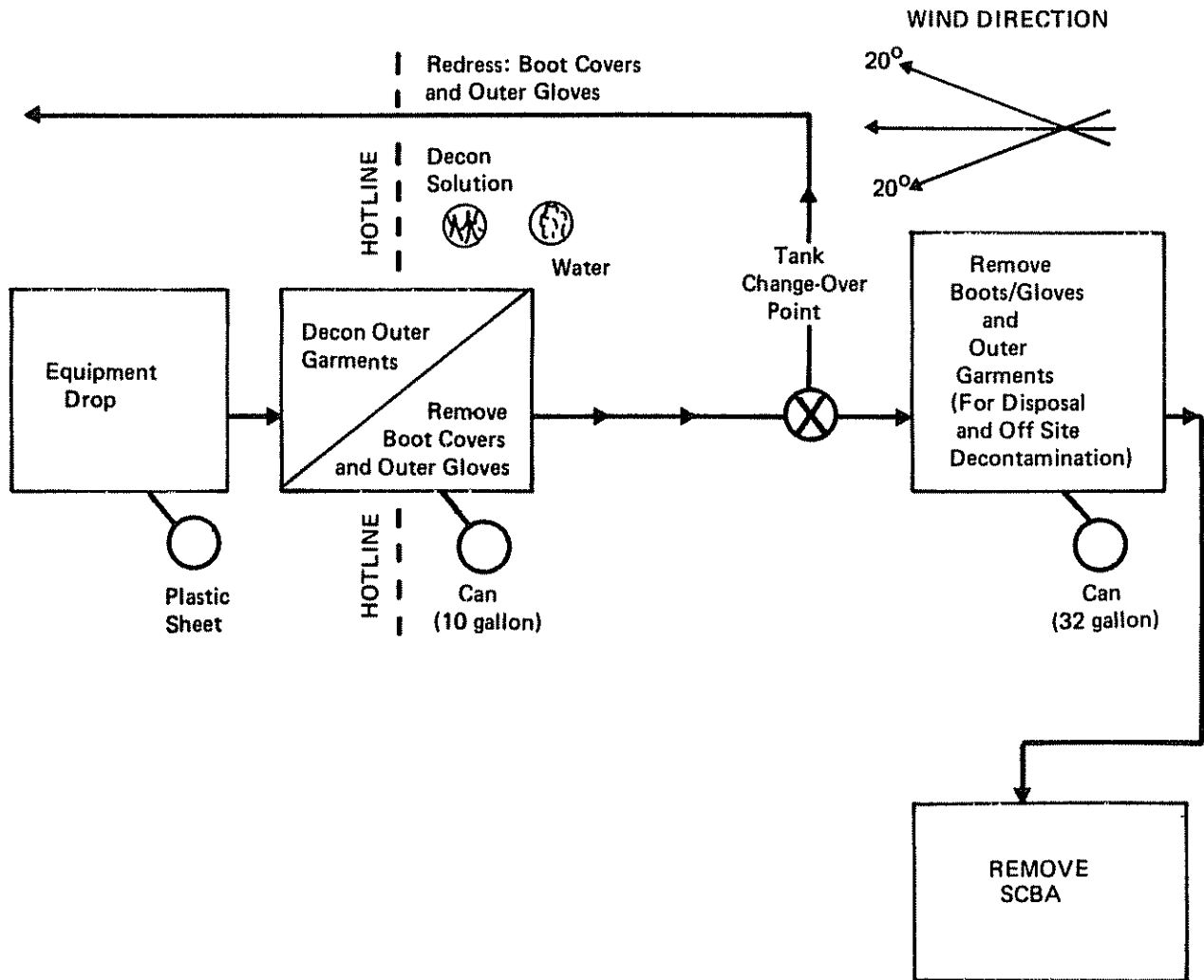


F.S.O.P. No. 7

PROCESS DECON PROCEDURES

MINIMUM DECONTAMINATION LAYOUT

LEVELS A & B PROTECTION

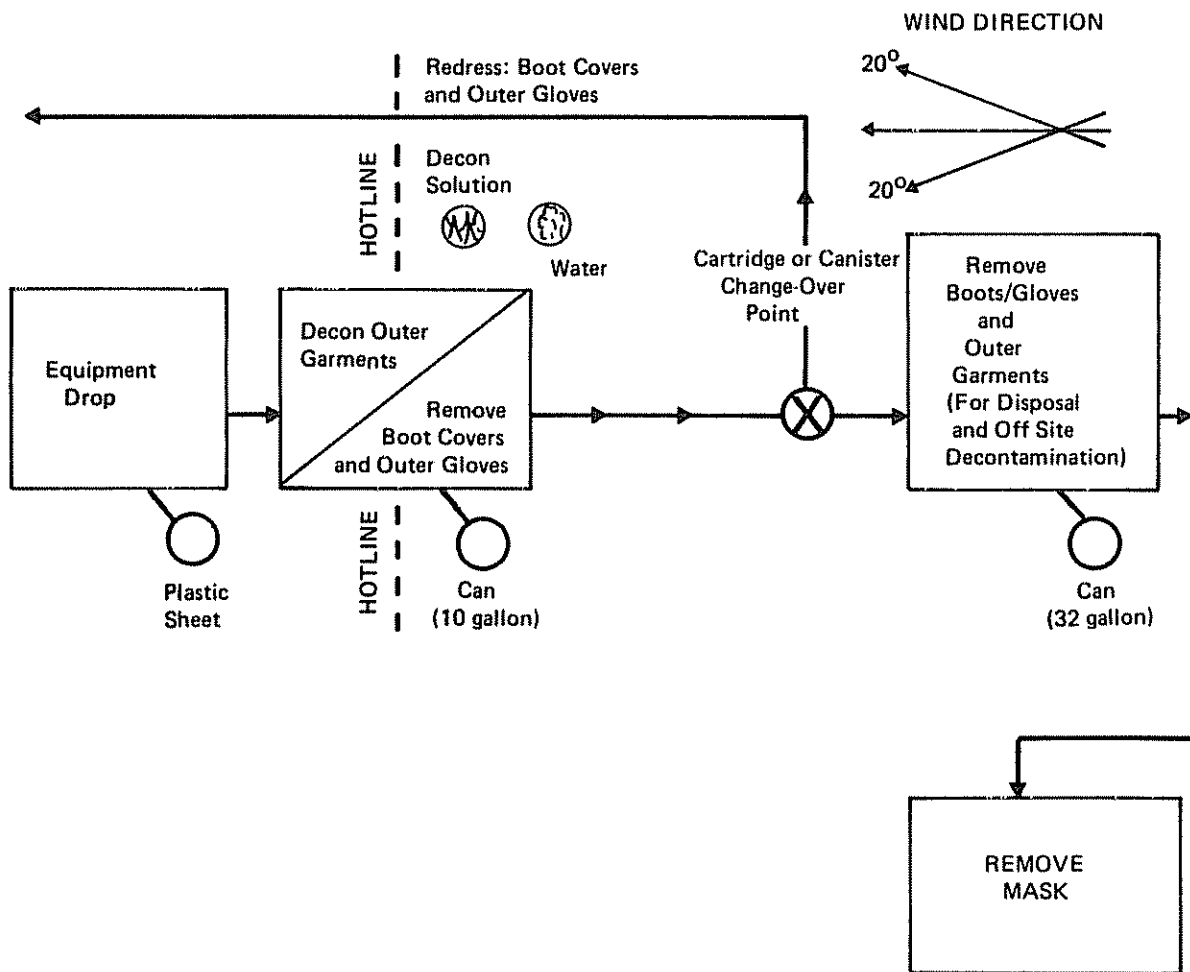


F.S.O.P. No. 7

PROCESS DECON PROCEDURES

MINIMUM DECONTAMINATION LAYOUT

LEVEL C PROTECTION



EQUIPMENT NEEDED TO PERFORM MAXIMUM DECONTAMINATION MEASURES FOR LEVELS A, B, AND C

- | | | | |
|------------|---|-------------|---|
| Station 1: | a. Various Size Containers
b. Plastic Liners
c. Plastic Drop Cloths | Station 10: | a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools
d. Boot Jack |
| Station 2: | a. Containers (20-30 Gallons)
b. Decon Solution or Detergent Water
c. 2-3 Long-Handled, Soft-Bristled Scrub Brushes | Station 11: | a. Rack
b. Drop Cloths
c. Bench or Stools |
| Station 3: | a. Containers (20-30 Gallons)
OR
High-Pressure Spray Unit
b. Water
c. 2-3 Long-Handled, Soft-Bristled Scrub Brushes | Station 12: | a. Table |
| Station 4: | a. Containers (20-30 Gallons)
b. Plastic Liners | Station 13: | a. Basin or Bucket
b. Decon Solution
c. Small Table |
| Station 5: | a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools | Station 14: | a. Water
b. Basin or Bucket
c. Small Table |
| Station 6: | a. Containers (20-30 Gallons)
b. Plastic Liners | Station 15: | a. Containers (20-30 Gallons)
b. Plastic Liners |
| Station 7: | a. Containers (20-30 Gallons)
b. Decon Solution or Detergent Water
c. 2-3 Long-Handled, Soft-Bristled Scrub Brushes | Station 16: | a. Containers (20-30 Gallons)
b. Plastic Liners |
| Station 8: | a. Containers (20-30 Gallons)
OR
High-Pressure Spray Unit
b. Water
c. 2-3 Long-Handled, Soft-Bristled Scrub Brushes | Station 17: | a. Containers (20-30 Gallons)
b. Plastic Liners |
| Station 9: | a. Air Tanks or Face Masks and Cartridge Depending on Level
b. Tape
c. Boot Covers
d. Gloves | Station 18: | a. Water
b. Soap
c. Small Table
d. Basin or Bucket
e. Field Showers
f. Towels |
| | | Station 19: | a. Dressing Trailer is Needed in Inclement Weather
b. Tables
c. Chairs
d. Lockers
e. Cloths |

EQUIPMENT NEEDED TO PERFORM MINIMUM DECONTAMINATION MEASURES FOR LEVELS A, B, AND C

- | | | | |
|------------|--|------------|---|
| Station 1: | a. Various Size Containers
b. Plastic Liners
c. Plastic Drop Cloths | Station 4: | a. Air Tanks or Masks and Cartridges Depending Upon Level
b. Tape
c. Boot Covers
d. Gloves |
| Station 2: | a. Containers (20-30 Gallons)
b. Decon Solution
c. Rinse Water
d. 2-3 Long-Handled, Soft-Bristled Scrub Brushes | Station 5: | a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools |
| Station 3: | a. Containers (20-30 Gallons)
b. Plastic Liners
c. Bench or Stools | Station 6: | a. Plastic Sheets
b. Basin or Bucket
c. Soap and Towels
d. Bench or Stools |
| | | Station 7: | a. Water
b. Soap
c. Tables
d. Wash Basin or Bucket |

FSOP 7: MAXIMUM MEASURES FOR LEVEL A DECONTAMINATION

- | | |
|---|--|
| Station 1: Segregated Equipment Drop | 1. Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. During hot weather operations, a cool down station may be set up within this area. |
| Station 2: Boot Cover and Glove Wash | 2. Scrub outer boot covers and gloves with decon solution or detergent/water. |
| Station 3: Boot Cover and Glove Rinse | 3. Rinse off decon solution from station 2 using copious amounts of water. |
| Station 4: Tape Removal | 4. Remove tape around boots and gloves and deposit in container with plastic liner. |
| Station 5: Boot Cover Removal | 5. Remove boot covers and deposit in container with plastic liner. |
| Station 6: Outer Glove Removal | 6. Remove outer gloves and deposit in container with plastic liner. |
| Station 7: Suit and Boot Wash | 7. Wash encapsulating suit and boots using scrub brush and decon solution or detergent/water. Repeat as many times as necessary. |
| Station 8: Suit and Boot | 8. Rinse off decon solution using water. Repeat as many times as necessary. |
| Station 9: Tank Change | 9. If an air tank change is desired, this is the last step in the decontamination procedure. Air tank is exchanged, new outer gloves and boot covers donned, and joints taped. Worker returns to duty. |
| Station 10: Safety Boot Removal | 10. Remove safety boots and deposit in container with plastic liner. |
| Station 11: Fully Encapsulating Suit and Hard Hat Removal | 11. Fully encapsulated suit is removed with assistance of a helper and laid out on a drop cloth or hung up. Hard hat is removed. Hot weather rest station maybe set up within this area for personnel returning to site. |
| Station 12: SCBA Backpack Removal | 12. While still wearing facepiece, remove backpack and place on table. Disconnect hose from regulator valve and proceed to next station. |
| Station 13: Inner Glove Wash | 13. Wash with decon solution that will not harm the skin. Repeat as often as necessary. |
| Station 14: Inner Glove Rinse | 14. Rinse with water. Repeat as many times as necessary. |
| Station 15: Face Piece Removal | 15. Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers. |
| Station 16: Inner Glove Removal | 16. Remove inner gloves and deposit in container with liner. |

FSOP 7: MAXIMUM MEASURES FOR LEVEL A DECONTAMINATION

- | | |
|------------------------------------|---|
| Station 17: Inner Clothing Removal | 17. Remove clothing and place in lined container. Do not wear inner clothing off-site since there is a possibility that small amounts of contaminants might have been transferred in removing the fully-encapsulating suit. |
| Station 18: Field Wash | 18. Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available. |
| Station 19: Redress | 19. Put on clean clothes. |

FSOP 7: MINIMUM MEASURES FOR LEVEL A DECONTAMINATION

- | | |
|--|---|
| Station 1: Equipment Drop | 1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations maybe set up within this area. |
| Station 2: Outer Garment, Boots, and Gloves Wash and Rinse | 2. Scrub outer boots, outer gloves and fully-encapsulating suit with decon solution or detergent and water. Rinse off using copious amounts of water. |
| Station 3: Outer Boot and Glove Removal | 3. Remove outer boots and gloves. Deposit in container with plastic liner. |
| Station 4: Tank Change | 4. If worker leaves Exclusion Zone to change air tank, this is the last step in the decontamination procedure. Worker's air tank is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty. |
| Station 5: Boot, Gloves and Outer Garment Removal | 5. Boots, fully-encapsulating suit, inner gloves removed and deposited in separate containers lined with plastic. |
| Station 6: SCBA Removal | 6. SCBA backpack and facepiece is removed (avoid touching face with fingers). SCBA deposited on plastic sheets. |
| Station 7: Field Wash | 7. Hands and face are thoroughly washed. Shower as soon as possible. |

FSOP 7: MAXIMUM MEASURES FOR LEVEL B DECONTAMINATION

- | | | |
|-------------|-----------------------------------|--|
| Station 1: | Segregated Equipment Drop | 1. Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross-contamination. During hot weather operations, cooldown stations may be set up within this area. |
| Station 2: | Boot Cover and Glove Wash | 2. Scrub outer boot covers and gloves with decon solution or detergent and water. |
| Station 3: | Boot Cover and Glove Rinse | 3. Rinse off decon solution from station 2 using copious amounts of water. |
| Station 4: | Tape Removal | 4. Remove tape around boots and gloves and deposit in container with plastic liner. |
| Station 5: | Boot Cover Removal | 5. Remove boot covers and deposit in container with plastic liner. |
| Station 6: | Outer Glove removal | 6. Remove outer gloves and deposit in container with plastic liner. |
| Station 7: | Suit and Safety Boot Wash | 7. Wash chemical-resistant splash suit, SCBA, gloves and safety boots. Scrub with long-handle scrub brush and decon solution. Wrap SCBA regulator (if belt mounted type) with plastic to keep out water. Wash backpack assembly with sponges or cloths. |
| Station 8: | Suit, SCBA, Boot, and Glove Rinse | 8. Rinse off decon solution using copious amounts of water. |
| Station 9: | Tank Change | 9. If worker leaves exclusion zone to change air tank, this is the last step in the decontamination procedure. Worker's air tank is exchanged, new outer gloves and boot covers donned, and joints taped. Worker returns to duty. |
| Station 10: | Safety Boot Removal | 10. Remove safety boots and deposit in container with plastic liner. |
| Station 11: | SCBA Backpack Removal | 11. While still wearing facepiece, remove backpack and place on table. Disconnect hose from regulator valve. |
| Station 12: | Splash Suit Removal | 12. With assistance of helper, remove splash suit. Deposit in container with plastic liner. |
| Station 13: | Inner Glove Wash | 13. Wash inner gloves with decon solution. |
| Station 14: | Inner Glove Rinse | 14. Rinse inner gloves with water. |
| Station 15: | Face Piece Removal | 15. Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers. |
| Station 16: | Inner Glove Removal | 16. Remove inner gloves and deposit in container with liner. |

FSOP 7: MAXIMUM MEASURES FOR LEVEL B DECONTAMINATION

- | | |
|------------------------------------|---|
| Station 17: Inner Clothing Removal | 17. Remove inner clothing. Place in container with liner. Do not wear inner clothing off-site since there is a possibility that small amounts of contaminants might have been transferred in removing the fully-encapsulating suit. |
| Station 18: Field Wash | 18. Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available. |
| Station 19: Redress | 19. Put on clean clothes. |

FSOP 7: MINIMUM MEASURES FOR LEVEL B DECONTAMINATION

- | | |
|--|---|
| Station 1: Equipment Drop | 1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down station may be set up within this area. |
| Station 2: Outer Garment, Boots, and Gloves Wash and Rinse | 2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent water. Rinse off using copious amounts of water. |
| Station 3: Outer Boot and Glove Removal | 3. Remove outer boots and gloves. Deposit in container with plastic liner. |
| Station 4: Tank Change | 4. If worker leaves exclusive zone to change air tank, this is the last step in the decontamination procedure. Worker's air tank is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty. |
| Station 5: Boot, Gloves and Outer Garment Removal | 5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic. |
| Station 6: SCBA Removal | 6. SCBA backpack and facepiece is removed. Avoid touching face with finger. SCBA deposited on plastic sheets. |
| Station 7: Field Wash | 7. Hands and face are thoroughly washed. Shower as soon as possible. |

FSOP 7: MAXIMUM MEASURES FOR LEVEL C DECONTAMINATION

- | | |
|---|--|
| Station 1: Segregated Equipment Drop | 1. Deposit equipment used on site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area. |
| Station 2: Boot Cover and Glove Wash | 2. Scrub outer boot covers and gloves with decon solution or detergent and water. |
| Station 3: Boot Cover and Glove Rinse | 3. Rinse off decon solution from station 2 using copious amounts of water. |
| Station 4: Tape Removal | 4. Remove tape around boots and gloves and deposit in container with plastic liner. |
| Station 5: Boot Cover Removal | 5. Remove boot covers and deposit in containers with plastic liner. |
| Station 6: Outer Glove Removal | 6. Remove outer gloves and deposit in container with plastic liner. |
| Station 7: Suit and Boot Wash | 7. Wash splash suit, gloves, and safety boots. Scrub with long-handle scrub brush and decon solution. |
| Station 8: Suit and Boot, and Glove Rinse | 8. Rinse off decon solution using water. Repeat as many times as necessary. |
| Station 9: Canister or Mask Change | 9. If worker leaves exclusion zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, and joints taped worker returns to duty. |
| Station 10: Safety Boot Removal | 10. Remove safety boots and deposit in container with plastic liner. |
| Station 11: Splash Suit Removal | 11. With assistance of helper, remove splash suit. Deposit in container with plastic liner. |
| Station 12: Inner Glove Rinse | 12. Wash inner gloves with decon solution. |
| Station 13: Inner Glove Wash | 13. Rinse inner gloves with water. |
| Station 14: Face Piece Removal | 14. Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers. |
| Station 15: Inner Glove Removal | 15. Remove inner gloves and deposit in lined container. |

FSOP 7: MAXIMUM MEASURES FOR LEVEL C DECONTAMINATION

- | | |
|------------------------------------|--|
| Station 16: Inner Clothing Removal | 16. Remove clothing soaked with perspiration and place in lined container. Do not wear inner clothing off-site since there is a possibility that small amounts of contaminants might have been transferred in removing the fully-encapsulating suit. |
| Station 17: Field Wash | 17. Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available. |
| Station 18: Redress | 18. Put on clean clothes. |

FSOP 7: MINIMUM MEASURES FOR LEVEL C DECONTAMINATION

- | | |
|--|---|
| Station 1: Equipment Drop | 1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area. |
| Station 2: Outer Garment, Boots, and Gloves Wash and Rinse | 2. Scrub outer boots, outer gloves and splash suit with decon solution or detergent water. Rinse off using copious amounts of water. |
| Station 3: Outer Boot and Glove Removal | 3. Remove outer boots and gloves. Deposit in container with plastic liner. |
| Station 4: Canister or Mask Change | 4. If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty. |
| Station 5: Boot, Gloves and Outer Garment Removal | 5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic. |
| Station 6: Face Piece Removal | 6. Facepiece is removed. Avoid touching face with fingers, Facepiece deposited on plastic sheet. |
| Station 7: Field Wash | 7. Hands and face are thoroughly washed. Shower as soon as possible. |

