

# Firefighting Decontamination Policy\*

\*should be used in conjunction with COHSR  
(Canada Occupational Health and Safety Regulations)

## EXAMPLE STANDARD OPERATING PROCEDURE

### EXPOSURE PREVENTION AND DECONTAMINATION

A. Purpose: To provide all Federal, or federally regulated firefighters at private employers a policy and procedure regarding both on-scene decontamination and at the station decontamination of all bunker gear, personal protective equipment (PPE) and skin following the exposure to the products of combustion or other contaminants<sup>1</sup>. This policy extends to decontamination of the skin using an off scene shower. This policy covers emergency and training events where the firefighter(s) has possibly come in contact with potentially or unknown harmful chemicals and carcinogens. The procedure(s) cover cleaning, stowing and transportation of personal PPE in an effort to minimize to as low as reasonably achievable the transfer of contaminants from gear via contact with bare skin as well as inhalation of air borne contaminants and/or any other pathway of exposure. Thoroughly following these procedures will minimize contamination and better prevent exposure.

B. Background: On scene decontamination of PPEs and skin is performed to remove contaminants following exposure to the products of combustion. On scene decontamination can reduce hazardous compounds entering the body through absorption, ingestion and inhalation. Showering as soon as possible after an incident can further reduce absorption of hazardous compounds.

C. Scope: This instruction applies to all firefighters and personnel involved in on scene emergency operations and/or training and/or unforeseen incidents resulting in exposures to the products of combustion. Additional decontamination instructions and procedures may be required for Specialized Cleaning when determined by the Incident Commander (IC).

D. Review: This policy shall be reviewed in conjunction with the Hazard Prevention Program (HPP) as outlined in Part XIX of the COHSR (Canada Occupational Health and Safety Regulations), at least every 3 years.

E. Objective: To provide decontamination of PPEs and skin to reduce the possibility of hazardous compounds found in the products of combustion from entering the body.

F. Speed: Decontamination should emphasize thoroughness, not speed. Under non-critical conditions certain commonsense actions should be taken, such as decontaminating the fire fighter with the lowest air reserve first. Speed is only important

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<sup>1</sup> "or other contaminants" includes much more than fires and products of combustion including but not limited to: fuel and fuel spills, unknown contaminants, carbon fibres released from composite aircraft, commercial goods, cargo..etc.

where a victim is involved and even then decontamination should be as thorough as is practicable. Circumstances may dictate that emergency decontamination becomes necessary, examples of such situations being where a protective suit has become split or damaged, or when a fire fighter is injured. Emergency decontamination may also be applicable when contaminated civilians or other emergency workers (police, ambulance, etc.) are involved.

G. Training – Every employer shall, with the participation and consultation of the policy committee or, if there is no policy committee, the work place committee or the health and safety representative, develop and implement an employee education and training program with respect to hazard prevention and control at the work place including the training of all personnel in decontamination, as per this policy. The training program will include extensive onboarding, refresher training and demonstration as well as all hazard information of which the employer is aware or ought to be aware.

This entire policy shall be discussed at least monthly with the workers, refresher training shall be provided regularly and all personnel shall be very familiar with this policy and appendices. Decontamination skills shall be demonstrated following training emphasizing close familiarity with practice over periodic training with testing where individuals learn to occasionally retain the knowledge for testing purposes.

The employer shall, with the participation of the policy committee or, if there is no policy committee, the work place committee or the health and safety representative, review and, if necessary, revise the employee education and training program at least once a year or whenever there is a change in conditions in respect of the presence of hazardous substances or new information becomes available to the employer.

## **I. RESPONSIBILITY**

### A. All uniformed personnel exposed to the products of combustion, or other contaminants are responsible for:

1. Ensuring they complete on scene decontamination and decontamination at the station as directed by the incident commander (IC) or their designee and after completing all operational assignments. This includes returning to the station for showers when directed by the IC. In such cases, that full thorough decontamination, as outlined in the procedures (Appendices A through H) are not followed, all personnel whom were potentially exposed shall file a Hazardous Occurrences (HOIR) report with the Labour Program, and/or similar hazard provincial exposure registry. Eg: Worksafe BC exposure registry.

### B. Incident commanders are responsible for:

1. Determining when on scene decontamination is required.
2. Determining the appropriate level of firefighting decontamination for personnel.
3. Identifying exposure to hazardous materials.

4. Announcing the location of where decontamination will occur.
5. Developing a resource release schedule that limits out of service time while units return to quarters for personal showers.
6. Ensuring personnel are compliant with directive.
7. Ensuring compliance with existing laws, regulations and collective agreement requirements.

C. All supervisors and uniformed personnel are responsible for:

1. Monitoring and documenting their personnel for exposure to the products of combustion and ensuring decontamination of PPEs and skin occurs on scene.
2. Complying with the resource release schedule to limit out of service time as personnel return to quarters for showers.
3. Monitoring the assigned terminal radio operator (TRO) channel to determine need of their assigned resource while personnel and equipment are cleaned at the station.
4. Ensuring their unit is made available for responses as soon as feasible after personnel and equipment are clean.

D. All supervisors are responsible for

1. ensuring all firefighters are adequately trained, and
2. are performing the daily inspections of their PPE as prescribed. The daily inspections will look at both cleanliness, and working order of their assigned PPE, as covered during initial training, and
3. ensuring all shared (unassigned) PPE is inspected daily as prescribed.

All PPE requiring cleaning or repair shall be cleaned according to Department procedure.

E. First arriving units, or firefighter(s) as assigned by the IC, are responsible for:

1. Identifying the location of on scene decontamination and informing the chain-of-command.
2. Preparing the on scene decontamination area.
3. Performing on scene decontamination.
4. Preparing PPE doffing area.

## II. Health and Safety Firefighting Decontamination Policy

A. Initiation of On Scene Decontamination. On scene decontamination of PPE shall be performed on incidents where personnel are exposed to the products of combustion, or other contaminants and when the IC determines it is required.

B. On Scene Decontamination Area. An on-scene decontamination area shall be upwind from the operational area at a distance where no additional exposure may be possible.

When choosing the location of the decontamination area, consider the following:

- Prevailing weather conditions (temperature, precipitation...etc.)
- Wind direction
- Slope of the ground
- Surface material and porosity (grass, gravel, asphalt, etc.)
- Availability of water
- Availability of power and lighting
- Proximity to the incident
- Location of drains, sewers and watercourses

When setting up the area, wherever possible and practicable, provide the following features:

- Containment of wash-down water if that is necessary
- Spare supply of breathing air (extra SCBA)
- Clearly marked boundaries
- Clearly marked entry and exit points with the exit upwind, away from the incident and its contaminated area
- A waiting location at the entry point where contaminated personnel can await their turn without spreading contamination further
- Access to triage and other medical aid upon exit, if necessary
- Protection of personnel from adverse weather conditions, if possible
- Security and control from the setting up of the area to final clean-up of the site
- A supply of industrial strength garbage bags, double or triple bagged if necessary

The following items shall be positioned at this location:

1. Dry brush.
2. Five-gallon bucket.

3. Liquid soap/water mixture: three-ounce dish soap (88ml) mixed with three gallons water (11 litres).
4. Plastic scrub brush.
5. One-inch hose line from apparatus with low flow fog nozzle or garden hose with spray nozzle.

C. On Scene Decontamination. On scene decontamination requires personnel being decontaminated to remain in full PPE with facepiece donned and breathing from SCBA . Personnel performing decontamination shall be in appropriate PPE to support personnel in operational area; nitrile gloves, eye protection and N100 mask (no oil) or mask with P100 filtration at minimum.

1. Personnel should be assigned to on scene decontamination as assigned units.
2. On scene decontamination is a head to toe, and front and back, cleaning of the PPE that may consist of either of the following types as determined by the degree of exposure.

The IC or their designee makes the determination:

**Routine Cleaning – “type R” (Dry Decontamination followed by Wet Decontamination)** – Exposure to dry products of combustion for a short duration. See appendix A – Routine Cleaning for procedure.

OR

**Advanced Cleaning – “type A” (Possible Moderate to Heavy Exposure)** - Exposure to interior firefighting or exterior operations while working in close proximity to the fire for longer durations. See appendix B – Advanced Cleaning for procedure.

OR

**Extremely Low Hazard “ELH” Decontamination** see Appendix F

OR

Any of the above paired with **Specialized Decontamination** see Appendix E

Regardless of which type of Decontamination is selected, the IC or their designee shall draft, date and sign a report outlining which type of decontamination was selected and the rationale for the decision. This report must be sent to the health and safety committee (representative) without delay but in no longer than 7 calendar days.

The IC will ensure compliance with:

1. the required doffing of PPEs after decontamination (see appendix C – Safety Removing PPE for procedures).
2. The required storage, maintenance and transportation of equipment, PPE and clothing (see appendix D Transportation, Storage and Maintenance of Equipment for procedures.)

D. Doffing PPEs after Decontamination. PPE doffing shall take place next to the decontamination area and downwind but adjacent to the rehabilitation/medical treatment area. The following items shall be positioned at this location:

1. Impermeable gloves.
2. Sanitation wipes.
3. Respiratory protection masks.
4. Large plastic trash bags for PPE and trash (soiled sanitation wipes and disposable towels).

E. Cleaning of skin during Doffing of PPEs. Personnel shall use Department approved sanitation wipes to remove contaminants on the skin during the doffing process.

F. Compliance with incident rehabilitation/medical treatment plan is required immediately after doffing of PPE is completed.

G. On Scene Doffing of Contaminated PPEs. Personnel shall limit skin contact with PPEs at the conclusion of decontamination by wearing impermeable gloves while removing PPEs. Contaminated turnout coat, pants gloves, and hood should be placed in a plastic bag with the top secured and transported back to the station in a compartment where exposure is minimized.

H. Resource Release Schedule. Resources with exposed personnel shall be released in a systematic fashion so operational personnel remain on scene to complete incident objectives. Released resources shall remain assigned to the incident from the time period not less than from en route to the station until all decontamination is completed. (see Appendix D for procedure).

I. Showering Following Exposure. On scene decontamination extends to showering at the station as soon as feasible following exposure to the products of combustion for a more thorough washing of the skin.

J. Emergencies. Elements of this policy may not apply when emergency incidents require immediate engagement of personnel and equipment. In all such cases, or if the Decontamination Policies were not thoroughly followed, a Hazardous Occurrences Report, (HOIR) shall be filed.

K. Medical Assistance. Workers have the right to seek medical treatment from a medical professional of their choice (at the employer's cost).

### III. PROCEDURES

## APPENDIX A - Routine Cleaning

**Dry Decontamination followed by Wet Decontamination for exposure to dry products of combustion or other contaminants for a short duration less than forty-five minutes.**

### Introduction

This procedure covers all firefighting operations that result in exposure to products of combustion, or other contaminants.

#### A. The IC shall determine the need for on scene decontamination:

1. Recognize hazard and determine on scene decontamination requirements (type, location, equipment and personnel resource needs).
2. Assign unit(s) to be responsible for on scene decontamination and provide direction on type of decontamination required for personnel.
3. Transmit decontamination expectations and location of on scene decontamination area

#### B. Preparing on scene decontamination area

Personnel assigned to on scene decontamination unit(s) shall locate and prepare the area upwind from the incident and downwind from the rehabilitation/medical treatment area. Personnel decontaminating others shall don appropriate PPE as per policy.

#### C. Procedure – Routine Cleaning – Dry Decontamination

This will require the use of the dry brush and wet wipes that are provided within the “Firefighter Decon Kit”

1. Ensure proper PPE is in place and used by both the firefighter being cleaned and the firefighter conducting the cleaning (attendant #1). It is mandatory that the firefighter stays “on air” during the dry decontamination to stop the inhalation of any particles.
2. Start at the top of the head and use the dry brush to remove as many particles from the fire fighters PPC, this includes SCBA harness and air bottle. This should take at least twenty minutes.
3. Use never fewer than three wet wipes from the “Firefighter Decon Kit” to wipe the firefighters mask in an attempt to remove finer particles from this particularly sensitive area.



4. Brush off the tops, followed by the bottoms of the firefighter's boots ensuring no debris remains including no debris in the tread area on the bottom soles.

D. Procedure – Routine Cleaning – Wet Decontamination

This will require the use of the wet brush, soap, wipes, hazmat bags, and Tyvek coveralls that are provided within the "Firefighter Decon Kit"

1. Ensure proper PPE is in place and used by both the firefighter being cleaned, the firefighter who conducts the cleaning during Dry Decontamination (attendant #1) and the firefighter conducting the wet cleaning (attendant #2).
2. Fill Decon Bucket with water and portioned soap found within the "Firefighter's Decon Kit" using water from apparatus or hydrant via 1 3/4" hose line.
3. Do not remove SCBA facepiece. Place helmet on back of neck.
4. Assistant to flush fire fighter downwards from head to toe with copious amounts of low-pressure water. Don't forget to wash and rinse the bottoms of the fire fighter's boots. Include inside and outside of helmet, mask, harness, and inside of coat-wrists to the cuff. (this step should take at least twenty minutes)
5. Remove all protective clothing and accessories. If possible, remove liner from helmet. Scrub all items, including the helmet liner, inside and out with a mild (1to 2%) trisodium phosphate solution. Then flush with water.
6. Remove SCBA and clean any missed areas and set aside.
7. Remove firefighter PPE and bag it using one of the large HAZMAT bags found in the "Firefighter Decon Kit"
8. Use at least four wet wipes to clean face area (being careful not to touch your face with your hands), then hands, then neck and a final wipe to be extra thorough.
9. Put on a pair of Tyvek coveralls found within the "Firefighter Decon Kit".
10. It is strongly recommended that the firefighter shower and change into a clean uniform as soon as possible.

### III. PROCEDURES

#### **APPENDIX B - Advanced Cleaning**

**Possible Moderate to Heavy Exposure for exposure to interior firefighting or exterior operations while working in close proximity to the fire or other hazard for longer durations, over forty-five minutes. When in doubt between Appendix A, Routine Cleaning, and Appendix B, Advanced Cleaning, always follow the advanced cleaning procedure.**

##### Introduction

This procedure covers all firefighting operations that result in exposure to products of combustion, or other contaminants where there is a possible moderate to heavy exposure resulting from extended time in close proximity to the fire and smoke.

##### A. The IC shall determine the need for on scene decontamination:

1. Recognize hazard and determine on scene decontamination requirements (type, location, equipment and personnel resource needs).
2. Assign unit(s) to be responsible for on scene decontamination and provide direction on type of decontamination required for personnel.
3. Transmit and communicate decontamination expectations and location of on scene decontamination area

##### B. Preparing on scene decontamination area

1. Personnel assigned to on scene decontamination unit(s) shall locate and prepare the area upwind from the incident and downwind from the rehabilitation/medical treatment area. Personnel decontaminating others shall don appropriate PPE as per policy.
2. Position dry brush for use.
3. Position 1" hose line charged to pump pressure with nozzle adjusted to medium flow and medium fog stream. Garden hose with spray nozzle can also be used.
4. Prepare soap water mixture of three-ounce dish soap with three gallons water in five gallon bucket with brush.

##### C. Personnel to be Decontaminated

1. Personnel to be Decontaminated shall enter decontamination area after completing all operational assignments and while in full PPE and breathing air from SCBA.

2. Close all PPE pockets and open storm flaps exposing zipper.

## Procedure – Advanced Cleaning

### **At the Scene**

1. Do not remove SCBA facepiece. Place helmet on back of neck.
2. Assistant, wearing protective clothing and SCBA (plus disposable chemical suit wherever possible), shall flush fire fighter downwards from head to toe with copious amounts of low-pressure water. Include inside and outside of helmet, mask, harness, and inside of coatwrists to the cuff. The individual being decontaminated stands upright with arms extended away from body at 90 degrees and feet shoulder width apart.
3. Do not smoke, eat, drink, or touch face.
4. Put SCBA, used cylinders, and any equipment (including hoses and tarps) suspected or known to be contaminated in garbage bags. Seal bags and return them to the station. Where circumstances permit, remove and bag protective clothing also.

### **On Return to Station**

5. Put bags returned from incident scene in exterior cordoned-off area away from public access. Place apparatus out of service.
6. Strip completely. Place all clothing (protective clothing and personal clothing) in plastic garbage bags.
7. Place portable radios in a separate bag. Seal bags; place in exterior cordoned-off area.
8. Arrange for the supply of a number of steel drums. Upon their arrival, seal garbage bags with contaminated items into drums. Mark drums and place in exterior cordoned-off area, minimum 5-meter radius.
9. Arrange for the drums to be picked up and the contents analyzed. Some or all items may be destroyed; some may be able to be decontaminated and returned.
10. Shower, scrubbing all of the body with soap and water, with particular emphasis on areas around the mouth and nostrils and under fingernails. Shampoo hair. Thoroughly clean mustache if you have one and repeat multiple times, if necessary.

### III. PROCEDURES

#### APPENDIX C – Safely Removing PPE

This procedure covers the removal (doffing) of safety materials, devices and clothing. These procedures must be followed regardless of which Decontamination Process (Routine Cleaning, Advanced Cleaning, Specialized Cleaning or Extremely Low Hazard Decontamination)

##### A. Safety Removing PPE

1. Personnel shall move from the decontamination area to the designated doffing area.
2. A resource person shall be selected to provide support, if needed.
3. Position firefighter near large plastic bag used for transporting all PPE. Place items in bag as removed.
4. Remove structure gloves. Place in plastic bag. Avoid skin contact with exterior of glove.
5. Use sanitation wipes to clean hands. Place soiled wipe in trash bag.
6. Dry hands with clean disposable towel.
7. Don impermeable gloves.
8. Remove all PPE beginning with the facepiece and SCBA and working toward the feet. Place helmet, hood, face piece, jacket and pants and turnout boots in plastic bag with gloves.
9. Seal plastic bag.
10. Remove impermeable gloves and place in trash bag.
11. Use sanitation wipes to clean skin areas susceptible to exposure of contaminants. These areas include but are not limited to: face, ears, neck, arms, wrists, and legs.
12. Place soiled wipe in trash bag. ecur bagged PPEs in apparatus compartment or location where exposure is minimized.

B. . Follow incident rehabilitation/medical treatment requirements as directed.

C. Personnel should return to quarters for showers as soon as operationally feasible. Personnel shall return to quarters in uniform. Remove all clothing worn at the scene, including undergarments and underwear, and place in garbage bag for laundering and/or dry cleaning (preferably the latter). Take all garbage bags with contaminated clothing to a place where they can be cleaned separately from other garments. Shower, scrubbing all of the body with soap and water, with particular emphasis on areas around the mouth and nostrils and under fingernails. Shampoo hair and thoroughly clean mustache if you have one.

Do not smoke, drink, eat, go to the bathroom or touch the face until the shower step is complete.

D. Resource remains assigned to incident until all exposed personnel have showered and clean PPEs are placed on apparatus. This shall be completed in an expeditious manner.

E. Fluid replacement. At hazardous materials incidents, especially when chemical suits are worn, serious dehydration can occur in fire fighters. Replacement of fluids should only be permitted until gross decontamination is performed—a washdown especially around the head and upper body. The preferable method of consuming liquids is by means of drinking boxes with straws (the straw inserted by someone with uncontaminated hands), or, if no drinking box or clean hands is available, by means of a squeeze bottle with an attached drinking tube as used by athletes. The above should form part of comprehensive rehabilitation procedures which should be developed in consultation with your EMS providers.

F. Contaminated PPEs shall either be disposed of or cleaned following the Department approved process.

NOTE: Processes should be in place pre-incident for all PPE as to whether the PPE is disposed of or cleaned.

Ensure outer shells are washed separately from inner linings to reduce the transfer of contaminants from the outer gear to the inner liner. Proper PPE must be in place during the process of separating outer gear from inner liner as well as both loaded and unloading the washer. Spare gear shall be provided while primary gear is being laundered. At the time of drying, if there is only one dryer, inner linings should be dried separately and prior to the outer gear. Following the dryer, the inner linings and outer shells must be inspected for damage prior to being reassembled.

G. Cleaned and no longer contaminated PPE returned to the station.

### **III. PROCEDURES**

## **APPENDIX D – Transportation, storage and Maintenance of Equipment**

### **Introduction**

This procedure covers the transportation, storage and maintenance of equipment, safety materials, devices and clothing relating to decontamination. These procedures must be followed regardless of which Decontamination Process (Routine Cleaning, Advanced Cleaning, Specialized Cleaning or Extremely Low Hazard Decontamination).

### **Transportation**

- A. No contaminated PPE or gear is permitted to ride inside the cab of the firetruck with firefighters, this includes SCBAs, hose and equipment used. Once the equipment has been properly cleaned and decontaminated it may be returned to the cab or compartment of the apparatus. All contaminated PPE must be transported in heavy bags in an exterior compartment or via a support vehicle. Once back at the station, all equipment used at the scene must be properly cleaned prior to being put back in service.
  
- B. The cab of the firetruck, including seat cushion, must be thoroughly washed, at least monthly and post incident.

### **Storage**

Storage as NFPA standard for firefighting ensemble (NFPA 1971) and SCBA (NFPA 1981?)

### **Maintenance**

All equipment, safety materials, devices and clothing shall be used and maintained as per manufacturer's specifications and shall be regularly inspected with a prescribed schedule consistent with manufacturer's specifications.

### **III. PROCEDURES**

## **APPENDIX E – Specialized Cleaning including Etiologic Hazards, Water-Reactive Hazards and Radioactive Hazards**

### **Introduction**

This procedure covers all firefighting operations that result in a firefighter and/or their PPE becomes soiled with known, suspected or possible hazardous materials or biological agents.

### **Pre-Incident Planning**

Pre-Incident Planning. Review the procedures and, if they are suitable for your location, assemble the equipment necessary into an easily transported container. Some departments, for instance, have all the special items needed for etiologic decontamination carried in a “Etiologic Decontamination Kit.”

Many departments will have infrequent need to use these procedures. To prevent skill decay, and to prevent certain critical steps in the procedures being accidentally left out, it is suggested that a copy of the procedures be available at the scene and that regular training in the procedures take place. Executing these procedures accurately is not as easy as it would seem. The time when you have twenty garbage bags with contaminated clothing sitting on your apparatus floor is not the time to start looking for a laundry that will clean them. Most commercial cleaning companies will not be interested in handling contaminated clothing.

Furthermore, it should be recognized that at some incidents the nature or extent of the contamination may be such that full decontamination is beyond the resources of the fire department (especially with Specialized Cleaning) and will require specialist treatment. With these three levels, consideration should be given to the destruction of all permeable items in case of serious exposure.

The employer through the IC should therefore make prior arrangements for the following:

- Obtaining steel drums at any time of the day or night. The drums must be clean and must have a removable lid—not just a bung and vent-hole.
- Analysis and expert decontamination of equipment and clothing contaminated by severely hazardous substances. This is needed for Etiologic Hazards, Water-reactive Hazards and Radioactive Hazards although different companies are likely to be needed for the different levels.
- Acceptable methods of disposal for items that cannot be cleaned, or that would be uneconomical to attempt to clean, for Etiologic, Water-reactive and Radioactive contaminants.
- The use of a hospital laundry service to perform Etiologic decontamination on protective clothing. This laundry should be approached for the loan of a number of sterilization bags, which are typically used in the hospitals to put dirty laundry in for

- shipment to the laundry service. Check that the hospital laundry service can take bunker coats—in some cases the buckles may bash the inside of their machines too much.
- Check the availability of replacement protective clothing and equipment that can be used while the original items are out being decontaminated for Etiologic hazards, water-reactive hazards and radioactive hazards.
- You may want to establish a policy regarding personal items such as rings, wallets, watches, etc. Many of these, especially leather items, cannot be decontaminated and may have to be destroyed. Fire fighters should be aware of their department's policy with regard to recompense or replacement.

### **A. Etiologic Hazards**

#### **Special Equipment Required – Etiologic Hazards**

A presentation spray can (such as used for pesticide spraying), biological neutralizing substance (such as bleach, commercial sterilizing agent, etc.), orange garbage bags, black garbage bags, sterilization bags as used by hospital laundries, and a box of surgical masks.

#### **At the Scene**

1. If using bleach, make up a 5 percent to 6 percent bleach solution in the spray can. Take note of the bleach concentrate percentage when calculating the make-up of the solution. Many brands as purchased in the store are already 6 percent. If using a commercial sterilizer, follow the manufacturer's directions.
2. Flush the fire fighter downwards from head to toe with low-pressure *water*. SCBA facepiece can now be removed. Place helmets in black plastic garbage bag(s) and seal. Place surgical mask on fire fighter. 3. If using bleach, spray the fire fighters' boots (but not their bunker gear) and any tools, hoses, and other equipment used (except for portable radios) with the *bleach* solution in the spray can. Leave for 10 minutes, then flush with water. If using a commercial sterilizer, follow the manufacturer's instructions.
3. Remove SCBA. Place in black plastic garbage bag and seal. Remove fire fighters' protective clothing (except boots and gloves). Place in orange plastic garbage bag and seal. Remove any portable radio worn. Place in black plastic garbage bag and seal. Discard surgical masks.
4. Do not smoke, eat, drink, or touch face.
5. Before leaving the scene, a fire fighter wearing SCBA should attempt to spray as much of the ground exposed to the material and the wash-down water as possible with bleach solution. Then flush the outside of the spray can with clean water.
6. Before leaving the scene, seal the orange garbage bags into the sterilization bags.



## **On Return to Station**

Reminder – Do not smoke, eat, drink, touch face, or until Step 12 is completed.

Reminder II – Black garbage bags are to be used to items retained at the station. Orange bags are for items sent away for sterilization.

7. Place apparatus temporarily out of service.

8. One fire fighter should dress in protective clothing and SCBA, and in an outside area perform the following tasks:

- Open the black plastic garbage bags, wipe all helmets, portable radios, SCBA sets, and used cylinders with a rag lightly dampened with a 6 percent bleach solution. After 10 minutes, wipe these items again with a rag dampened with clean water. If using a commercial sterilizer, follow the manufacturer's directions.
- Seal all used black garbage bags and rags into another bag and put out for normal garbage pickup. If using bleach, empty the spray can and flush out to remove bleach residue.

9. Remove all clothing worn at the scene, including underwear, and place in garbage bag for laundering and/or dry cleaning (preferably the latter). Take all garbage bags with contaminated clothing to a place where they can be cleaned separately from other garments.

10. All personnel should shower, scrubbing all of the body with soap and water, with particular emphasis on areas around the mouth and nostrils and under fingernails. Shampoo hair and thoroughly clean mustache if you have one.

11. Do not smoke, eat, drink, touch face, or void until Step 12 is completed.

12. Put on clean clothes. Place apparatus back in service when decontamination is completed.

13. Have cleaned firehose and SCBA checked by competent personnel before placing it back in service.

14. Arrange for the sterilization bags to be taken to a hospital laundry facility for cleaning and sterilization of the protective clothing, gloves, and any other garments sent in.

### **Reminder.**

15. Black garbage bags are to be used for items retained at the station. Orange bags are for items sent away for sterilization.

## **To Change SCBA Cylinders at the Scene.**

16. Flush empty cylinder and surrounding area of fire fighter's back with copious amounts of low-pressure water. Also flush facepiece and breathing tube to prevent inhalation of harmful material when regulator is disconnected. Wear gauntlet-type rubber gloves, such as those used by linemen, when changing cylinders. Flush gloves after use before removing them. Place empty cylinder in black plastic garbage bag and seal for subsequent decontamination. The person doing the flushing and cylinderchanging must wear protective clothing and SCBA.

## **B. Water-Reactive Hazards**

### **At the Scene**

1. Set up a suitable double filter HEPA vacuum cleaner with power supply. Provide a dry brush and a containment capture method for materials falling off the contaminated personnel. Assistants to don full protective clothing and SCBA, plus disposable chemical suits if available and appropriate.
2. If this is a radiation incident: The fire fighters suspected of being contaminated will be scanned carefully with a radiation monitor suitable for detecting surface contamination. All parts of their clothing and personal equipment will be scanned, including the soles of the boots. If no readings are found, the personnel that have been checked can leave the decontamination area.
3. If not a radiation incident, or if the fire fighter was found to be radioactively contaminated: Stand fire fighter in center of containment area, clean helmet and place on back of neck, then clean inside of helmet.
4. Commence cleaning from head downwards. Include all external areas. Slacken SCBA harness to allow cleaning behind straps and backplate. Likewise, loosen the hose-key belt and clean behind it.
5. When fire fighters have been fully vacuumed or brushed off, they will step out of the containment area. As they do so, their boots, including the soles, must be cleaned off so any contaminant will remain within the containment area.
6. Procedures will then continue as follows:
  - Radioactive incident—Do Radioactive procedure
  - Etiological or dry pesticide incident— Do Etiological procedure
  - Other incidents—go to Appendix A – Routine Cleaning, unless advice is received that Advanced Cleaning is more appropriate
7. All used filters and collected waste are to be placed in a garbage bag, sealed and tagged, and disposed of in a manner acceptable to the agency having jurisdiction.

## **C. Radioactive Hazards**

### **At the Scene – Radioactive Hazards**

## 1. Preparation

- (a) Mark off a decontamination area with two parts.
- b) Make up a solution of detergent and water. Obtain scrub brushes.
- (c) Set out a reserve air supply, preferably with a workline unit or otherwise with a spare SCBA.
- (d) In the first part of the decontamination area, set up a runoff capturing method, either with wading pools or through the use of tarpaulins.
- (e) If appropriate, a “walkway” of polyethylene sheeting (weighted down if necessary) can be placed from the exit from the incident scene to the decontamination area, to prevent possible contamination of the ground.

2. The decontamination crew will don SCBA and disposable chemical suits.

3. The fire fighters suspected of being contaminated will be scanned carefully with a radiation monitor suitable for detecting surface contamination. All parts of their protective clothing and personal equipment will be scanned, including the soles of the boots. If no readings are found, the personnel that have been checked can leave the decontamination area.

4. Personnel found to be contaminated will be scrubbed down thoroughly with the detergent solution by the decontamination crew. This is followed by a flushing off using low-pressure water. Efforts should be made to capture the runoff.

5. The fire fighters will then move to the second part of the decontamination area, where they will be scanned again with the radiation monitor. If any readings are found, they will return to the first part of the decontamination area and Step 4 will be repeated.

6. When all personnel have been cleaned of contamination, the decontamination crew themselves will be hosed down. The matter of the captured runoff water will be discussed with environmental authorities and disposal arranged in a manner acceptable to them.

7. In the event fire fighters being decontaminated run out of breathing air, the reserve supply set out in Step 1 will be passed to them. They should hold their breath while changing facepieces.

8. In the event that, despite repeated scrubbing, any fire fighters cannot be decontaminated, they will remove as much of their clothing as possible in the second part of the decontamination area, and don clean or spare clothing. The clothing that has been taken off will be sealed into garbage bags and returned to the station. This evolution must be executed in such a manner as not to contaminate the clean clothing.

9. Any equipment suspected or known to be contaminated will be sealed into garbage bags and returned to the station

## **On Return to Station – Radioactive Hazards**

10. Repeat Steps 5 to 12 for those fire fighters who were found to be contaminated in Step 3, and for any contaminated equipment.

To Change SCBA Cylinders at the Scene. Personnel emerging from the incident to have their breathing apparatus cylinder changed will be scanned with a radiation contamination monitor in a manner identical to Step 3.

If no readings are found, the fire fighter can proceed to the SCBA cylinder change area and may then return to the incident with a fresh cylinder.

Personnel found to be contaminated may not return to the incident. They will be put through the full Radioactivity decontamination procedure, and other fire fighters will be sent in to the incident to replace the fire fighters withdrawn.

Before the replacement firefighters go in, they should attempt to obtain information as to where the other personnel might have received their contamination, in order to allow them to take the necessary caution when approaching that area.

### III. PROCEDURES

## APPENDIX F – Extremely Low Hazard Decontamination

### Introduction

This procedure covers all firefighting operations that result in extremely low exposure to known products of combustion. Note this procedure is not sufficient for medium amounts of any burning hydrocarbon or fuel including but not limited to diesel, jet fuel or oil.

#### A. The IC shall determine the need for on scene decontamination:

1. Recognize hazard and determine on scene decontamination requirements (type, location, equipment and personnel resource needs).
2. Assign unit(s) to be responsible for on scene decontamination and provide direction on type of decontamination required for personnel.
3. Transmit decontamination expectations and location of on scene decontamination area

#### B. Preparing on scene decontamination area

Personnel assigned to on scene decontamination unit(s) shall locate and prepare the area upwind from the incident and downwind from the rehabilitation/medical treatment area. Personnel decontaminating others shall don appropriate PPE as per policy.

#### C. Procedure –Extremely Low Hazard Decontamination for known substances

### On Return to Station

1. Wash down all protective clothing with a mild (1 percent to 2 percent) trisodium phosphate solution. Rinse with water.
2. Wash down SCBA cylinders and harnesses with a mild trisodium phosphate solution. Take care to wipe, not scrub, around regulator assembly. Rinse with clean water. If damage is suspected to any part of the unit, ensure it is sent for service.
3. Scrub hands and face with soap and water. *Note:* Where the scrubbing of the protective clothing may release harmful vapors caught in the fibers, it may be necessary to wear breathing apparatus while washing down protective clothing. In these cases, monitor the atmosphere around the washing area. Release of vapors may indicate commercial cleaning is required.
4. Start at the top of the head and use the dry brush to remove as many particles from the fire fighters PPC, this includes SCBA harness and air bottle. This should take at least twenty minutes.

5. Use at least one wet wipe from the “Firefighter Decon Kit” to wipe the firefighters mask in an attempt to remove finer particles from this particularly sensitive area.
6. Brush off the tops, followed by the bottoms of the firefighter’s boots ensuring no debris remains including no debris in the tread area on the bottom soles.

### **III. PROCEDURES**

#### **APPENDIX G – Chemical Suit Decontamination**

When a chemical suit is taken off its wearer, a suitably protected assistant should roll it in on itself in order to keep the outside of the suit from coming into contact with the wearer.

Because of the inherent smoothness and impermeability of chemical suits, it is usually only required that the on-scene washdown part of fire fighter decontamination is performed. Upon return to the station, instead of doing the steps listed in the appropriate procedure, fire fighters should wash and rinse the chemical suits and examine them carefully for damage caused at the incident. Zippers should be lubricated with their special lubricant.

Follow-up communication with the suit manufacturer as to the exposure, as well as follow-up from the exposing chemical's manufacturer, is recommended to determine long-term effect of exposure to chemical protective ensembles. Any questionable or unusual findings anywhere in the decontamination or testing process should be immediately referred to the manufacturers; the clothing should be placed out of service until it can be repaired or reevaluated. If a limited-use (disposable) suit becomes contaminated, after gross decontamination it should be bagged and disposed of in a manner acceptable to the authority having jurisdiction.

### **III. PROCEDURES**

#### **APPENDIX H – Environment**

One fundamental concept forms the basis for the emergency decontamination procedures: “The human being comes before the environment.” Notwithstanding the above, where containment of runoff is called for, genuine attempts must be made if only to avoid possible legal consequences. Examples of containment basins are:

- Children’s wading pools
- Portable tanks
- Tarps laid over a square formed by hard suction hose or small ground ladders
- Diking with earth, sandbags, etc. covered with tarps

Fire fighters stepping out of a containment basin should lift one foot, have it rinsed off so the water falls inside the basin, step out with that foot, and repeat for the other foot. When the containment basin is full, it should be able to be siphoned or pumped off into drums or into a vacuum truck for controlled disposal in a manner acceptable to the relevant authority having jurisdiction. Any runoff that is not contained will eventually enter sewers and water-courses, or if it sinks into the ground will ultimately reach the water-table. In cases when a catch basin is not practicable, provided a chemical is diluted with water at the rate of approximately 2000:1, pollution of water-courses will be significantly reduced.

Any substances that enter sewers and water-courses should be reported to relevant environmental authorities and to the sewage treatment plant likely to receive it. If necessary, advise water authorities downstream from the decontamination area of actual or potential pollution.

For materials that have a severe effect on the environment, the most appropriate decontamination will usually be to use minimal amounts of water, with runoff containment. Other substances should be deluged off personnel with the 2000:1 factor as a minimum guideline.