

**PHOENIX REGIONAL
STANDARD OPERATING PROCEDURES**

FIREGROUND EXPOSURE REDUCTION

M.P. 206.02

11/19-N

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PURPOSE

The purpose of this procedure is to establish safe and active practices for exposure reduction. When operating within the hazard zone, toxic substances can accumulate on personal protective equipment (PPE), firefighting equipment, and on the body. These toxic substances include known carcinogens.

POLICY

The Phoenix Fire Department and our automatic-aid system partners within the Central Arizona Life Safety System Response Council have a shared commitment to firefighter safety. This commitment includes reducing exposure to known carcinogens, toxins and other potential hazardous substances. The guidelines within this procedure are intended to reduce firefighter exposure and contamination. All personnel shall protect themselves and their coworkers by following to this procedure.

DEFINITIONS

For the purpose of this policy the following terms are defined as:

- Exposure is defined as a person or equipment coming into contact with a known hazardous substance or carcinogen.
- Contamination is defined as absorption, inhalation and ingestion of known hazardous substances or carcinogens within the body.
- Decontamination is defined as the removal of hazardous substances or carcinogens from an employee's tools, PPE, clothing, body, and work area to the extent necessary to prevent or minimize exposure and contamination.
- Hot Zone is defined as the area including and immediately surrounding the hazard area, which extends far enough to prevent adverse effects to personnel outside the zone.
- Warm Zone is defined as the area outside the Hot Zone where personnel and equipment decontamination (and support activities) take place.
- Cold Zone is defined as the area that contains the command post and such other support functions deemed necessary to control the incident.
- Drop Zone is defined as the area established to place equipment after it has been decontaminated.

PROCEDURE

When firefighters are exposed to environments with hazardous substances or carcinogens those substances can accumulate on equipment, PPE, clothing, and the body. The presumption should be the accumulation will lead to contamination. Examples of hazardous environments are as follows:

- Structure fires
- Hazardous materials incidents
- Vehicle fires
- Brush fires
- Dumpster fires

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Any incident or environment where smoke or off gassing is present for any duration of time can cause an exposure. Firefighters should be mindful that exposure to products of combustion, such as smoke, does not require visible conditions. All types of fire incidents often include a variety of combustibles (e.g., wood, paper, plastics, synthetics, fertilizers, pesticides, insecticides, solvents, petroleum products, and other unknown materials). The smell of hazardous materials or products of combustion indicates contamination. Inhalation, ingestion, and absorption of low quantities (measured in parts per million) or microscopic amounts can have a carcinogenic effect along with other adverse health effects.

Every member on the fireground needs to remain aware of the potential for exposure and contamination. This includes but is not limited to members performing fireground support operations (ladder work), the Engineer working at the pump panel, on deck crews, Safety Officer, Sector Officer, and Incident Commander. Unintended exposure of any personnel is possible due to shifting winds, expanding incidents, or unexpected events.

FIREGROUND EXPOSURE REDUCTION AND DECONTAMINATION GUIDELINES

Decontamination (decon) may be necessary for exposed or contaminated Fire Department personnel and/or civilians. All personnel exposed to products of combustion or contaminants should perform gross decon prior to entering the Cold Zone or leaving the incident scene. To facilitate this process, personnel are responsible for the following:

1. The Incident Commander is responsible for ensuring that a decon location is designated and announced on every applicable incident.
 - a. Generally, the decontamination location is setup by the first arriving engine company, or initial Incident Commander.
2. The Engineer of the fire company directed to setup decon shall establish and oversee the process. This includes setting up an approved hose line and other supporting decon equipment.
 - a. This hose setup should be established outside the Hot Zone, with enough water flow to facilitate decon without embedding contaminants into PPE and equipment.
 - b. To enable decon of multiple personnel, additional decon lines should be setup.
 - c. Depending on the length and extent of the incident a Drop Zone may be established. The Drop Zone should be established in a location that is downwind of personnel and may include placement of tarps or salvage covers.
3. Upon exiting the Hot Zone, personnel should remain on-air, and report directly to the decon location.
 - a. Those members with the lowest air supply should be decontaminated first.
 - b. Crew members should assist each other with rinsing off contaminants and debris. This should be a systematic process working from the collar-line down; remain mindful of high potential collection points such as the groin and armpits.
 - c. The objective is to rinse off contaminants without saturating the inner lining of PPE.
4. After the initial rinse personnel may go-off air using approved doffing techniques.
5. Personnel may begin decontamination of equipment (e.g., SCBA, tools, helmet, etc.) when appropriate. Consideration should be given to wearing the proper PPE for this process (i.e., EMS gloves and eye protection).

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- a. Soft bristle scrub brushes and department issued soaps and cleaners should be used to assist in the decon process.
6. Depending on the extent and length of the incident, all PPE may be left in a prepared Drop Zone.
7. Personnel should use department approved methods for cleaning of the head, neck, face, hands, and any other exposed skin.
8. When possible, personnel should resist the urge to eat or drink until initial decon is complete.
9. After decon, personnel should cool down to decrease the potential for contamination.
10. Every attempt should be made to limit contamination of the Cold Zone. For example, personnel shall complete the decon process prior to entering the Rehab Sector (if established).

If personnel are reassigned back into the Hot Zone, upon exiting they should go through the decon process as stated above. Examples include, salvage and overhaul efforts, retrieving hose lines, etc. When reloading hose lines personnel should be aware of the potential risk of exposure. Contaminates should be cleaned off hose lines prior to reloading. Personnel should take appropriate decon steps after reloading all equipment. Once released from the incident by the Incident Commander, it's recommended that PPE be bagged and sealed at the scene to prevent off gassing and contamination of the apparatus cab.

POST FIRE DECON

It is highly recommended that all personnel exposed to the products of combustion, or any potentially harmful chemical or biological toxins, complete a comprehensive decon as soon as possible after the exposure. The Incident Commander may place units with exposed personnel out-of-service until decontamination is complete. A crew member should monitor the radio in case an urgent call is dispatched. These units should immediately address the following:

- Switch out into your second set of turnout gear and send in contaminated turnouts for proper cleaning. Replacement hood, shroud, gloves and brim should be acquired.
- Decontaminate equipment (e.g., SCBA, helmet, mask, radios, tools, etc.).
- Decontaminate apparatus cab.
- "Shower within the hour." Consideration should be given to taking a cool shower when possible to minimize potential contamination by closing pores of the skin.
- Change into a clean uniform and wash soiled uniforms.
- Return apparatus to state of readiness and go back into service as soon as possible.
- Complete the Toxic Exposure form.

OPERATIONAL INFORMATION

Personnel are encouraged to carry a complete and clean uniform that can be accessed after an incident. This is especially important to members assigned to adaptive response units. The apparatus cab should be kept as clean as possible to avoid the transfer of contaminants. Fire companies should carry plastic bags to store and seal contaminated turnouts. This is critical to prevent off gassing in the apparatus cab.