Reducing Your Exposure by Keeping Gear Clean
By Jeff Stull

It is established that firefighter exposure to personal protective equipment (PPE) that is dirty, soiled, and contaminated presents an increasing concern for long-term firefighter health. Cancer and other diseases resulting from chronic exposure to contaminants have become a leading industry issue, and they are presumed to be associated with protection/hygiene practices and persistent harmful contamination found in firefighter PPE after fireground exposure.

General cleaning procedures have been established in NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. The practice of cleaning PPE is extremely important and should be undertaken when needed to remove contaminants that are frequently part of the same soils that make clothing dirty. There are several approaches to gear cleaning that fire departments should consider to reduce exposure of their members to contamination:

- **Structural gear that has been exposed in the working environment of a structural fire, including overhaul, should be considered to be contaminated.** Just because there are no obvious stains or darkening of the clothing does not mean that the clothing did not absorb a number of the contaminants that arise from the countless chemicals created during the combustion process. If the clothing smells like smoke then it is contaminated. Moreover, older structures may have asbestos or lead particulate matter that cannot be detected.

- **Protective clothing should be removed soon after its use.** After a fire, many of the volatile contaminants are still evaporating from the clothing and into your breathing zone. Ideally, clothing should be doffed in an area where there is good ventilation away from the fire scene.

- Some departments have the luxury of having a second set of gear that can be used to replace the clothing that has just been soiled. In these cases, the best practice is to have the soiled gear isolated and then fully cleaned.

- There are other departments that perform gross decontamination at the scene, usually by hosing off the gear to get the worst soils and particulate matter off the clothing. This is also an appropriate practice to help curb the spread of contaminants until the clothing can be adequately cleaned.
It is important to remember that it is not just the coat and pants that become contaminated. Helmets, hoods, gloves, and footwear as well as SCBA harnesses and facepieces all become soiled and potentially contaminated as well.

- **Hoods deserve special attention** because they easily become soiled and are directly against your skin in vulnerable areas of your body. Furthermore, hoods are probably one of the easier items to take care of since they can be readily cleaned with the coat and pants (it is preferred to wash hoods with clothing liners). Hoods can also be washed separately. Some departments provide their members with more than one hood to enable this practice, and still others simply collect any soiled hood and then issue their members a new or cleaned hood following each fire.

- Helmet ear covers and sweatbands also become soiled. These items should be removed and cleaned. The helmet shell and non-removable parts should be wiped down following any structural fire exposure. The textile items can generally be washed like clothing, but care must be taken that they are properly cleaned and reinstalled.

- Gloves and footwear tend to become extremely contaminated and generally must be hand washed. It is important not to distribute exterior contaminants to the insides of these clothing items.

Even though NFPA 1851 requires that fire departments clean their gear at least annually, turnout clothing should be cleaned after **any** exposure where contamination is expected. For many firefighters, this will occur at just about every structural fire where they directly operate on the fireground.

There is substantial activity within the industry to improve firefighter hygiene; this includes regular cleaning of gear as well as taking showers as soon as possible following any working fire. The fire service is beginning to explore ways to make these practices both more practical and easier to routinely implement. Yet the first important step is to clean clothing when it has been exposed, thereby reducing at least one of the ways that you may be exposed to fireground contaminants.