

Operating Guideline # 228

Limiting Exposure to Gases and Products of Fire At Scene

Created September 30, 2019

Updated January 3, 2024



PURPOSE:

The purpose of this Operating Guideline (OG) is to create an awareness of fire gases and the threat they pose to firefighter wellness.

ISSUE/RATIONALE:

Today's fires have the potential to give off a myriad of fire gases such as Carbon Monoxide (CO) and Hydrogen Cyanide (HCN).

HCN is a deadly gas given off as a by-product of combustion. The greatest amounts of HCN are released during the smoldering stages of a fire. HCN has an IDLH of 50 ppm. Examples of fires that may produce HCN can include a pot on a stove/cooking fires (an average small kitchen fire may produce 75 ppm of HCN), car fires, and dumpster fires. Overhaul operations or fire investigations may also expose staff to HCN. Symptoms of HCN exposure could range from a headache or blurred vision to seizures or death. Long-term health effects could include respiratory problems, heart disease or brain damage. HCN is particularly dangerous when it combines with CO – the dangerous combination is sometimes referred to as the “toxic twins” as each gas seems to magnify the toxicological effects of the other.

GUIDELINE:

1. All staff must adhere to the provisions of the following departmental OG's:
 - MLFD OG 105 – Personal Protective Clothing Care and Maintenance;
 - MLFD OG 203 – Breathing Apparatus and Respiratory Protection;
 - MLFD OG 216 – Annual FIT Testing;
 - MLFD OG 223 Respiratory Protection During Fire Investigations;
 - MLFD OG 301 – SCBA Maintenance Schedule;
 - MLFD OG 308 – Limiting Exposure to Exhaust Fumes;
 - MLFD OG 901 Vehicle Fires;
 - MLFD OG 1409 – Initial Response Considerations for Haz-Mat Incidents
2. Where possible, air monitoring should be instituted in all post-fire situations in enclosed areas including rehab and the results of such testing shall be recorded by the Safety Officer reported on the radio every hour.
3. All apparatus windows and doors shall be kept shut on scenes where there is airborne contamination present.
4. All PPC and PPE issued by the fire department is correctly worn at all times in the hot and warm zones on the fireground or fire training grounds.
5. SCBA is properly worn at all times during salvage and overhaul and during fire investigations.
6. Personal protective hoods and balaclavas are exchanged for clean hoods when air cylinders are exchanged, these hoods are kept on Command 10. Dirty hoods are to be

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stored in a sealed bag within the sealed chest only on the exterior compartment on Command 10.

7. No person shall be allowed entry into the hot zone without full PPE.
8. Pump operators shall wear full PPE and PPC, including SCBA if smoke present.
9. Gross decontamination of PPE is done before removing the facepiece see OG 232.
10. PPE is completely removed from firefighter before entering the rehab area, where weather conditions permit.
11. Hands and face are cleaned using wipes prior to any ingestion of food or drink, see OG 232.
12. Post fire wipes will always be provided at fire scenes. Incident Commanders should call for Station 6 or Station 9 to be paged to bring Command 10 to the scene for this purpose.
13. Contaminated crew do not enter the truck, every effort shall be made to bag contaminated gear and keep this gear separate from any clean area such as the cabs of trucks.
14. Gear is allowed to air out for 30 minutes prior to bagging.
15. Contaminated gear is bagged at the scene in provided bags, clear X Strong 42X48.
16. Contaminated gear is transported outside crew compartments, preferably in a command car or external compartment.
17. Where weather does not allow gear removal, disposable coveralls are worn over dirty PPE in apparatus to reduce cross contamination.
18. Contaminated gear is taken to Station 6 or Station 3 for cleaning, never taken to any firefighter home. Heavily soiled gear may be sent to a third party advanced cleaning agent, as approved by the Fire Chief.
19. Crew compartments that have integrated SCBA brackets must only have clean SCBA replaced into brackets. Any dirty or contaminated SCBA must be bagged following a gross decontamination at scene. This dirty or contaminated SCBA will be transported in the same fashion as PPC or PPE, external to crew compartments.
20. Gross decontamination of hose and tools are done at the fire scene, where possible.
21. Contaminated gear will never travel in personal owned vehicles.
22. Crew returns directly to the fire station post incident for further decontamination, see OG 232.

RESPONSIBILITY:

It is the responsibility of all members to comply with the provisions of this OG and particularly that Company Officers (supervisors), and firefighters ensure that they adhere to their duties in accordance with the Occupational Health and Safety Act.

DEFINITIONS:

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“IDLH” means “Immediately Dangerous to Life or Health”. It is the threat of exposure to airborne contaminants where exposure is “likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment.”

REFERENCES:

- Occupational Health and Safety Act (RSO 1990, c. 0.1)
 - Section 21 Committee Guidance Note GN 6-36 Limiting Exposure to Fire Gases
 - Section 21 Firefighter’s Cancer Prevention Checklist 2020