



Ontario Emergency Medical Services Section 21 Sub Committee

Emergency Medical Services Guidance Note #3:

Issue: Reducing Diesel Exhaust in EMS Stations

Although commercial emergency medical services (EMS) diesel vehicles currently meet emissions standards and are legislated to undergo an annual emission testing requirement, the potential for exposure to diesel fumes may still exist inside EMS stations. Employers should take all precautions reasonable in the circumstances to prevent or adequately control their exposure to diesel emissions in the workplace.

Incomplete combustion by diesel engines produces diesel exhaust fumes. Breathing in diesel fumes can have adverse health effects on workers. Exposure to the fumes can cause irritation of the eyes or respiratory tract. Prolonged exposure to diesel exhaust fumes may lead to respiratory diseases. Diesel exhaust is a complex mixture of gases and diesel particulate matter (DPM). In 2012, the International Agency for Research on Cancer (IARC) classified diesel engine exhaust as carcinogenic to humans (IARC Group 1), based on sufficient evidence that exposure is associated with an increased risk for lung cancer¹.

Components of the diesel exhaust include:

- carbon monoxide
- carbon dioxide
- sulphur dioxide
- nitrogen oxides
- aldehydes
- hydrocarbons
- polycyclic aromatic hydrocarbons (PAHs)
- soot (carbon).

The employer should take steps to control exposure to diesel exhaust rather than to focus on conducting airborne sampling.

Workplaces are advised to seek the assistance of a qualified occupational hygiene consultant when developing an air quality program.

In the development of an air quality program with respect to diesel emissions the workplace parties are advised to reference the Regulation for Industrial Establishments (Reg.851), which applies to EMS stations, including sections 124, 127, and 128, the Regulation respecting Control of Exposure to Biological or Chemical Agents (Reg.833) and the Occupational Health and Safety Act (OHSA).



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It is recommended that the installation of direct capture type exhaust system extractors or automated vehicle exhaust removal/ventilation systems be installed through renovation or new construction. An engineered ventilation system should also be considered to limit workers' exposure to diesel exhaust emissions.

In addition, exposures to diesel fumes may be reduced through engineering controls at the source, such as diesel exhaust converters or purifiers. The discharge of air from any exhaust system should be directed in such a manner so as to prevent the return of contaminants to the workplace.

The following actions may further assist in decreasing exposure to diesel exhaust fumes:

- Ventilate the garage by opening the doors prior to starting the engine.
- Move vehicles outdoors as soon as possible after start-up period. In the event EMS vehicles are equipped with air brakes, the vehicle should be moved as soon as low pressure warning devices are deactivated.
- Isolate adjacent occupied spaces from all emissions by ensuring that doors are self-closing and have adequate seals.
- Ensure regular diesel engine tuning/maintenance.
- Avoid unnecessary idling of vehicles.
- Selection of fuel with reduced sulfur content, if possible.
- All patient care equipment, linen, or personal belongings should be enclosed, (e.g. bagged, placed in a closed container or covered), if stored in the garage area.
- Complete an annual review of this guidance note by the joint health and safety committee (JHSC) and/or health and safety representative.

A reduction in soot discoloration of stations will be one indication that your controls are reducing exposure to EMS staff.



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References:

- 1) International Agency for Research on Cancer, IARC Monographs, Monograph 105 Diesel and Gasoline Engine Exhaust (2012).
<http://monographs.iarc.fr/ENG/Monographs/vol105/index.php>

Legislation/regulations

[Occupational Health and Safety Act](#)

Regulation 851, [Industrial Establishments](#)

Regulation 833, [Control of Exposure to Biological and Chemical Agents](#)

This document should be shared with the workplace joint health and safety committee or health and safety representative, incorporated into the workplace occupational health and safety policy and program where appropriate, and posted on the Public Services Health & Safety Association website and the websites of other interested stakeholders.

This Guidance Note has been prepared to assist the workplace parties in understanding some of their obligations under *the Occupational Health and Safety Act (OHSA)* and the regulations. It is not intended to replace the OHSA or the regulations and reference should always be made to the official version of the legislation.

It is the responsibility of the workplace parties to ensure compliance with the legislation. This Guidance note does not constitute legal advice. If you require assistance with respect to the interpretation of the legislation and its potential application in specific circumstances, please contact your legal counsel.

While this Guidance Note will also be available to Ministry of Labour inspectors, they will apply and enforce the OHSA and its regulations based on the facts as they may find them in the workplace. This Guidance Note does not affect their enforcement discretion in any way.