



Carbon Monoxide and Law Enforcement Personnel

October 2018

Several law enforcement personnel in Washington State have reported signs and symptoms of carbon monoxide (CO) exposure while driving pursuit-rated SUVs. Some sought emergency medical care, including oxygen support.

Our investigation revealed some of the employer's high-use Ford Interceptor SUVs (that were from model years 2013-2017) were associated with these exposures. The employer reported findings to the Department indicating that cracks and openings in the Interceptors' exhaust system (primarily manifolds, Y joints, and flex hoses) may have allowed exhaust/carbon monoxide to enter into the cab, exposing occupants.

Hazardous Carbon Monoxide Gas

Carbon monoxide (CO) gas is an odorless component of all vehicle exhaust. Although you can't smell CO, if you smell exhaust odor, assume CO exposure; but know that **not all exposed personnel have reported smelling exhaust.**



Warning! Cracks in vehicle exhaust manifolds (see arrow) can allow harmful carbon monoxide (CO) gas to enter the engine compartment and flow into the cab through the ventilation system. Photo: L&I

As you breathe in carbon monoxide, it replaces oxygen in your bloodstream. Ongoing exposure can possibly cause one or more of the following:

- Light-headedness/dizziness
- Headaches
- Nausea
- Vomiting
- Confusion
- Weakness
- Drowsiness
- Loss of consciousness
- Possible death (prolonged or highly-concentrated exposure)

If you experience symptoms, turn off the vehicle's ventilation system and increase your fresh air supply by rolling down the windows. Stop the vehicle as soon as safely possible and get out for some fresh air.

Symptoms are likely temporary, but too much extended moderate exposures can cause damage to key organs and acute high exposures can be deadly without prompt medical attention.

Prevention Guidance for Employers

Provide safety training to affected employees so they know the signs and symptoms of carbon monoxide exposure and what to do if they experience symptoms.

Identify problem vehicles. Here are some ways you can do this:

- Inspect the manifold and other parts of the exhaust system for damage.
- Test for carbon monoxide (CO) in the cab. Use appropriate CO monitors and position them as close as possible to the driver's breathing zone. Follow the manufacturer's maintenance and care instructions for continued reliability and accuracy.

Take problem vehicles out of service until repaired. After repairs, check to make sure all openings and gaps leading to the cab were sealed. Test for CO leakage during initial use.

Implement safety policies and procedures that will help prevent carbon monoxide (CO) exposure and ensure employees with exposure get *prompt* medical follow up (e.g., carboxyhemoglobin blood tests, treatment, etc.).

Include carbon monoxide in your written Hazard Communication Program.

Resources

Visit L&I's [Carbon Monoxide](#) resource page to find safety rules and resources.

Get 1-on-1 assistance from L&I or visit L&I's [Safety & Health webpage](#) for other resources to help strengthen your safety program.

Share this bulletin with others in law enforcement fleet management and your safety networks.

Carbon Monoxide (CO) Detectors

Residential detectors/alarms cannot be used for this purpose!

These detectors are designed to signal evacuation from a residence or office setting. They alarm too high* to protect employees from CO occupational exposure legal limits:

- 35 ppm CO for 8-hours
- 200 ppm CO for 5-minutes
- 1,500 ppm CO as an instantaneous (ceiling) limit

If you have a potential CO employee exposure, find a carbon monoxide (CO) monitor that:

- Provides and stores continuous and peak CO measurements.
- Can be set to vibrate, sound, or flash an alarm signal when CO concentrations reach occupational exposure limits.
- Has a built-in calibration feature to ensure continued accurate measurement.
- Can handle rough conditions during use.

*Per UL 2034, 4th Ed. 2017

*This ebulletin was developed by L&I's Division of Occupational Safety and Health (DOSHS) to alert employers, labor groups, and employees to potential hazards associated with work activities. **This is not a rule and creates no new legal obligations.** The information provided includes suggested guidance on how to avoid workplace hazards and describes relevant mandatory safety and health rules. DOSHS recommends you also check related rules for additional requirements.*

#3HB2018