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## **Diesel Exhaust Dangers and Safeguards**

On construction sites, mines, and other types of work sites, diesel engines are used frequently. Diesel engines power everything from water pumps to heavy equipment that allows for day-to-day activities to be completed efficiently.

While these engines are great tools, precautions need to be taken to protect workers from being over-exposed to diesel exhaust. Workers exposed to diesel exhaust face the risk of health effects ranging from irritation of the eyes and nose, headaches, and nausea, to respiratory disease and lung cancer.

### Diesel Exhaust Composition:

Diesel exhaust is a mixture of gases and particulates produced during the combustion of diesel fuel. The very small particles are known as diesel particulate matter (DPM), which consists primarily of solid elemental carbon (EC) cores with organic carbon (OC) compounds adhered to the surfaces. The organic carbon found in the exhaust includes a hydrocarbon that has been shown to cause cancer in test animals.

### Safeguards to Protect Workers:

- Limit workers' time spent in an area with higher levels of diesel exhaust.
- Properly ventilate any areas where there may be high levels of exhaust.
- Perform routine air monitoring to ensure levels are not at a dangerous level.
- Perform routine preventive maintenance of diesel engines to minimize emissions.
- Install engine exhaust filters.
- Install cleaner-burning engines.
- Using special fuels or fuel additives (e.g., biodiesel).
- Provide equipment cabs with filtered air.

- Install or upgrade main or auxiliary ventilation systems, such as tailpipe or stack exhaust vents to capture and remove emissions in maintenance shops or other indoor locations.
- Prohibit unnecessary idling or lugging of engines.
- Restrict the amount of diesel-powered equipment in an area.
- Designate areas that are off-limits for diesel engine operation and/or personnel travel.

Summary:

Diesel exhaust has been listed as a known human carcinogen, so it is very important to recognize the hazards that the exhaust poses.

Exposure to the exhaust can be greatly limited through proper engineering controls as well as practices as simple as not allowing equipment to idle unless absolutely necessary.

Occupations such as miners may have a higher chance of being overexposed however, even on an outdoor worksite, safe work practices need to be followed to protect everyone on site.