



Why care about diesel exhaust?

Diesel exhaust contains air pollutants such as hydrocarbons, carbon monoxide, air toxics and fine particles. Diesel combustion also creates carbon dioxide, which is a greenhouse gas. Reducing the use of diesel engines and exposure to the exhaust has a number of benefits to health and the environment in rural Alaska tribal communities.

What are the health effects of exposure to diesel exhaust?

Air pollution from diesel engines, especially fine particles, can lead to serious health problems for adults. Children and elders are at even greater risk.

Children are especially at risk from diesel emissions because their lungs are still developing and their faster breathing rate increases the amount of exhaust they inhale. Exposure to diesel exhaust has been linked with an increased risk of premature death, more hospital admissions for heart and lung disease and aggravation of health conditions such as asthma.

What are sources of diesel pollution in Alaska Native Villages?

Power generators, trucks, cruise ships, tug boats, fishing boats, home heating devices and heavy equipment are the main sources of diesel emissions in Alaska Native Villages.

How can diesel pollution be reduced?

Reduce idling

Encourage drivers not to idle their vehicle, particularly outside homes, schools, and other public buildings.

Use engine pre-heating devices (for example, engine block heaters and fuel-fired heaters). These devices reduce the need to idle diesel powered vehicles in cold weather.

Increase engine efficiency

Increase the efficiency of diesel engines to help reduce emissions and save fuel costs. A simple way to increase engine efficiency is to ensure proper maintenance.

For example, simply maintaining proper tire pressure will use less fuel and generate lower diesel emissions from trucks.

Tips for diesel fuel use

- Prevent/reduce idling near schools and homes.
- Maintain equipment to reduce emissions and fuel use.
- Replace old engines with ones of higher efficiency.



Retrofitting can reduce emissions from engines like these.

Other ANV Air Fact Sheets

- Indoor Air
- Road Dust
- Solid Waste Burning
- Wood Smoke

For these fact sheets and related videos, visit:

www.epa.gov/region10/tribal/air/alaska.html

Increase engine efficiency

Continued

Replace old equipment

Update equipment with modern engines and controls, such as fuel injection, turbo charging and air/fuel control, as these emit significantly less pollution than older generation engines. Similarly, modern furnaces and boilers emit less pollution than older units.

Retrofit diesel engines

Retrofitting diesel engines with after-treatment devices, like diesel oxidation catalysts or diesel particulate filters can significantly reduce diesel emissions. In some cases diesel engines can also be retrofitted with modern equipment (air/fuel controllers, turbochargers, high efficiency burners) which will also reduce emissions.

Use cleaner fuel.

Use cleaner fuels, such as ultra low sulfur diesel (ULSD). This fuel will greatly reduce sulfur emissions and particulate matter. Use of ULSD by on and off road vehicles and equipment is required nearly everywhere in Alaska as of October 1, 2010.



Maintained engines use less fuel and pollute less.

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What are other ways to reduce exposure to diesel exhaust?

Avoid breathing any diesel fumes. Exhaust from stationary generators, furnaces and boilers should be directed away from occupied structures. The exhaust stacks of stationary diesel equipment should also be elevated above the roofline of nearby structures. Ensuring that diesel generators and equipment are kept in the best operating condition will greatly reduce air pollution and also lead to increased fuel efficiency.

If a community is planning a new power generation facility, in addition to considering permitting and other regulatory requirements, it is important to consider factors during construction and siting, such as the height of the stack, the location of the stack and the direction of prevailing winds with respect to where the majority of the community lives and works.

What partners are available?

You can contact the West Coast Collaborative (a public-private partnership to reduce diesel emissions) to learn more. The Collaborative provides resources and information about funding opportunities from EPA and other funding sources.

EPA has funds that can be used for limiting the impacts for diesel fuel use, including anti-idling campaigns, equipment retrofits and replacement by EPA-verified technologies or certified engines.

See www.westcoastdiesel.org

Learn more on the web

Particulate emissions from diesel-fueled engines as a toxic air contaminant
www.arb.ca.gov/toxics/dieseltac/dieseltac.htm

National Library of Medicine "Tox Town"
<http://go.usa.gov/3Dd>

Alaska Division of Air Quality
<http://dec.alaska.gov/AIR/>

Ultra Low Sulfur Diesel (ULSD)
www.dec.state.ak.us/air/anpms/ulsd/ulsdretro.htm