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Kevin Mallory and EPA Administrator Mike Leavitt

EPA praise for Mainers curbing diesel bus pollution

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ENVIRONMENTAL BULLETIN

A Maine DEP Informational Bulletin for Maine Citizens & School Officials

EPA Praises Maine's Efforts to Curb School Bus Pollution

School bus exhaust linked to asthma in children

From Fort Kent to Portland Maine school buses are a little greener this year.

EPA Administrator Mike Leavitt visited a Portland elementary school in September to recognize Maine's efforts to reduce diesel emissions from hundreds of school buses across the state.

Fort Kent was the first of 27 participating school systems to retrofit their school buses with Diesel Oxidation Catalyst (DOC) mufflers. These DOC mufflers will reduce harmful diesel particle pollution by 25 percent from each bus.

Exposure to diesel exhaust can pose health risks. Particles in diesel exhaust can trigger asthma and aggravate respiratory ailments.

Asthma is the most prolific long-term childhood disease, now affecting 13% of Maine children. Children are especially sensitive to air pollution because their lungs are still developing and they breathe at a faster rate than adults.

"Maine is a national model in its commitment to clean school buses," said Leavitt, speaking at the Presumpscot Elementary School. "Maine school transportation directors have gone above and beyond to ensure this pilot project is a success."

Funds from EPA's Clean School Bus USA program is helping 27 school systems acquire DOC mufflers to retrofit approximately 300 buses. This technology reduces emissions of particulate matter, carbon monoxide and hydrocarbons.

Peter Saucier, Transportation Director for SAD 27, Harvey Boatman of MEDOE and vendor Glenn Reid celebrate being the first in state to retrofit school buses.

The Maine Retrofit Project ensures that school buses - which are the safest way for kids to get to school - also are the cleanest possible transportation.

The State of Maine competitive contract pricing for this retrofit technology is now available to all school districts, bus contractors, universities and state agencies for two years.

Recommendations to reduce diesel exhaust

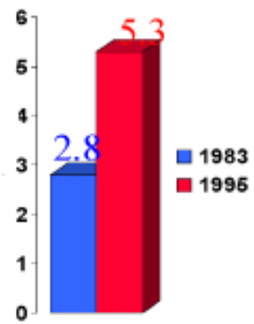
* Prevent or reduce bus idling whenever practical in the schoolyard and at cold start-up.
* Require routine maintenance to keep buses running smoothly with no leakage of fumes into seating areas.
* Examine the duration of rides and take appropriate steps to minimize length of routes where possible.
* Reevaluate the location of bus parking lots, avoiding close proximity to areas where fumes can enter buildings.
* Consider retrofitting buses with pollution control equipment.

Getting on the bus at the MAPT Conference ...

Panelists at the Maine Association for Pupil Transportation (MAPT)2004 conference presented strategies for reducing school bus pollution.

Ellen Tohn, Senior Advisor from the Asthma Regional Council, led the Panel on: Asthma and Diesel pollution in the Northeast.

"Children diagnosed with asthma doubled between 1983 and 1995."



Key Points:

* There was a huge surge in asthma cases between 1985 and 1990.
* Maine has the highest child hood asthma rate in the nation.
* Particles in diesel exhaust can trigger asthma and aggravate respiratory symptoms.
* Children are more sensitive to air pollution; their lungs are developing and they have a faster breathing rate.
* Diesel engines contribute more than 20 percent of the fine particle emissions (PM) in New England.
* DOC mufflers can reduce PM 25%.

Panelist offers strategies for reducing idling and fumes on the bus:

Lennie Goff, Oakland Transportation Director offered advice on no-idling

1) ***The school yard needs to be a no-idling zone.*** This is for the health of the children - it's very important. Sure, issues will come up; it requires team effort to work together to find solutions to issues like condensation. Keep idling buses at least a couple of hundred yards from the school. Better yet, warm it up while driving, so that the air in the cabin is cleaned out before the kids get on the bus.

2) Computerized routing software has helped us reduce the time kids spend on the bus. We cut over 22,000 miles off our routes last year. *Every mile a child doesn't have to ride the bus helps minimize their exposure to fumes.*

3) Electric cabin (Webasto type) heaters cut down fumes; they warm the bus without the engine running and can be set to warm up the bus in the morning before you turn the bus on. *They're especially helpful on our trip buses used for athletics.* We're ordering all of our new buses with these heaters now.

Participants in Maine's Clean School Bus Retrofit Project:

These school systems have not only adopted a no-idling policy but are also installing retrofit equipment on their buses to reduce air pollution:

Auburn School Dept.
Brunswick School Dept.
Caribou School Dept.
Ellsworth School Dept.
Falmouth School Dept.
Freeport School Dept.
Gorham School Depat.
Medway School Dept.
Oxford Hills School Dept.
Portland Public Schools
South Portland Public Schools
Westbrook School Dept.
Wiscasset School Dept.
Union #42 (Readfield) and Monmouth
MSAD #1 (Presque Isle), Limestone, and Bridgewater
MSAD #6 (Standish)
MSAD #9 (Farmington)
MSAD #27 (Fort Kent)
MSAD #41 (Milo)
MSAD #43 (Mexico)
MSAD #47 (Oakland) and Waterville Public Schools
MSAD #52 (Turner)
MSAD #77 (East Machias)

Doing Our Share For Clean Air

No-Idling Tips, Training & Tools

Turn off school bus engines when buses arrive at their destinations, particularly on school grounds.

Do not restart buses until departure.

Try to limit the idling time to what is recommended by the manufacturer - generally 3-5 minutes.

Install Webasto-type cabin heaters in the bus to help warm the engine, avoid starting difficulties and shorten warm-up time.

Winning no-idling sign selected by bus drivers at MAPT Conference

Contact Harvey Boatman at DOE or Lynne Cayting at DEP to obtain a free driver training video on no-idling and for a sign for each of your school yards.

Emission Control Technology

Maine State contract prices effective until July 2006

Donaldson DOC muffler & Spiracle Crankcase Filter

Clean Diesel Technology (CDTI) Platinum Plus DOC & Fuel Catalyst

Donaldson

DOC Muffler with Spiracle Crankcase Ventilation Filtration System

- Verified by EPA to reduce both tailpipe and crankcase emissions for **PM by 25%, CO by 13% and HC by 52% ***
- Eliminates harmful crankcase emissions by 100%, reduces engine oil consumption and underhood odor/fumes
- Crankcase filters must be changed with every oil change or three times a year.
- New England Detroit Diesel Allison can provide installation and service.
- **Warranty** for DOC muffler is 100,000 miles or 5 years for medium duty engines.

$1185 for DOC Muffler plus Spiracle Crankcase Filter with mounting hardware, instruction kit and training (prepaid freight)

$1395 for DOC muffler plus Spiracle Crankcase filter with hardware mounting and installation

$345 for Spiracle Crankcase filter system only

$35 Spiracle Crankcase filters (plus shipping)

CDTI

DOC Platinum Plus Purifier system with Fuel Borne Catalyst

- Verified by EPA to reduce tailpipe emissions for 1994-2003 engines for **PM by 25%, CO by 40%, HC by 40%, and NOx by 2%**
- Verified by EPA to reduce tailpipe emissions for 1988-1993 engines for PM by 41%, CO by 16% and HC by 25% *
- Fuel Borne Catalyst is a fuel additive which may be splash blended to fuel storage tank, *requiring an independent central fueling depot*
- Estimated fuel savings of 7%
- Fuel Borne Catalyst reduces PM emitted from engine, predominantly the elemental carbon portion
- **Warranty** for DOC muffler is 100,000 miles or 5 years for medium duty engines.

$1130 for 9.5" DOC muffler with mounting hardware, instruction kit and training (prepaid freight)

$972 for 7.5" DOC muffler with mounting hardware, instruction kit and training

$1260 for DOC muffler with hardware mounting and installation

$75 per gallon of Fuel Borne Catalyst

**PM particulate matter, CO carbon monoxide, HC hydrocarbons*

At mechanics' workshops we learned..

Donaldson Co. engineers reviewed the installation procedure of the Spiracle Crank Case Filter system.

Key Points:
* Spiracle retrofit kits are available for most buses.
* Eliminates harmful crank case emissions by 100%.
* Reduces engine oil consumption and underhood odor and fumes.
* Requires filter replacement about 3 times/year.

Clean Diesel Technology demonstrated Diesel Oxidation Catalyst (DOC) muffler installation procedures.

Key Points:
* Installation is the same as any muffler replacement, but new heavy duty clamps are required to support the heavier DOC muffler.
* Reduces harmful pollutants by 25%.
* Estimated installation time: 45-60 minutes.

Mechanics' questions answered:
* No special maintenance required.
* Warranteed for 5 years/ 100K miles.
* Does not affect engine performance.
* Runs on standard diesel fuel (does not require low sulfur fuel).

Mechanics and TD's were able to observe and ask questions. about installation and maintenance, etc.

Advice from Dave Wilkins, SAD 17 mechanic: Rewiring the Overhead Reds for engine free operation.

* Overhead flashing lights and other safety equipment can be used without the engine running by re-wiring the circuitry in the bus (newer buses have circuitry wired this way). We use the Weldon 7000, 8-Way Flasher Unit.
* First make sure that the master switch for the Overheads is supplied with 12V, off the battery side of the solenoid (and not the ignition side). That ensures the lights will have power at all times even with the key off.
* With the master wired to BATT+ side, there are then 11 wire terminals on the 7000 (#1 Overide is not used). Terminals 2-8 should be wired as labeled on the unit (Terminal #9 we don't use). We use Terminal #10 for flash red when door is open and Terminal #11 is Negative Ground.

Wiring complete; system should work with key off and door open.

The Environmental and Energy Study Institute recognized Maine's Clean School Bus Project. They applauded Mainers' success in pioneering cleaner bus driving practices. Maine's Transportation Directors and school bus drivers are leading the nation with cleaner driving practices and a focus on reducing idling. Schools implementing idle reduction policies reduced idling times over ten minutes, more than 50 percent , thereby reducing emissions and providing a healthier bus ride.

Congratulations to Portland Public Schools TD, Kevin Mallory; for being awarded a federal grant to purchase three compressed natural gas (CNG) school buses over three years. The CNG school buses will reduce diesel soot by a whopping 90% and seat as many as 90 passengers. The school bus delivery will coincide with completion of Portland's natural gas fueling facility for 10 city buses.

Hop on board for a healthier ride...

Great news - state officials have negotiated with vendors of Diesel Oxidation Catalyst (DOC) mufflers to obtain the *lowest price in the nation* for this emission control equipment. All Maine schools, universities and state agencies can now take advantage of incredibly low pricing to retrofit their diesel buses for healthier air.

DEPs' Lynne Cayting

DOC muffler systems reduce unhealthy particulate matter by 25%. The contract prices will be in effect until July 2006. Check out the vendor specs on page six.

The Donaldson Company was selected as the *primary contractor* for Maine's Clean School Bus USA Retrofit Project. Their bid includes the Spiracle crank case filtration system which reduces harmful crankcase emissions by 100%. The Donaldson DOC muffler and Spiracle crankcase filter provides a 25% reduction of particulate matter (PM) at the lowest cost ($37.00 for each percent of PM reduction).

A *secondary contractor,* Clean Diesel Technologies, Inc. (CDTI), was also selected to do a demonstration project at four selected school districts that have central fueling depots. CDTI's product, the Platinum Plus Purifer system, uses a Fuel Borne Catalyst (additive) that removes 15-25% of the PM emitted from the engine. The combined DOC and fuel catalyst, claims to provide twice the pollution reduction of typical DOC muffler systems. CDTI also claims a 7% fuel economy savings by using the fuel additive.

Training* on installation of the DOC and Spiracle Filter system was held at the annual MAPT Conference in July, 2004.

Don't miss out on this opportunity to retrofit your buses and make the air students breathe cleaner and healthier!

**** To obtain a video of the mechanic training workshop contact Lynne Cayting @ Maine DEP, (207) 287-2437.***

And surveys say...

At the 2004 Conference, DEP surveyed Maine bus drivers about idling habits in the school yard.

- The good news is more drivers are idling less, only 5-10 mins.; and the drivers idling more than 10 minutes were idling less than in 2002 (though up from '03).
- The bad news is a decrease of drivers idling only 0-5 mins.

As part of the Clean School Bus Grant, ARC surveyed 17 Maine school transportation directors about their attitudes towards no-idling policies and using DOC mufflers as pollution control equipment on school buses.

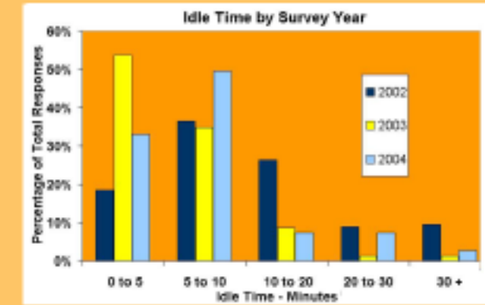
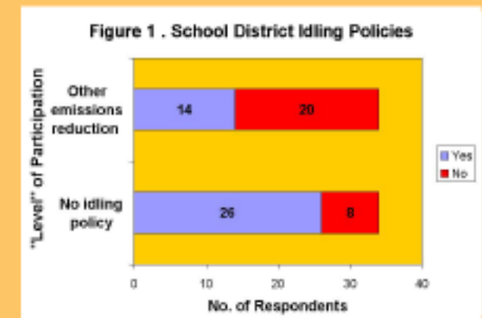
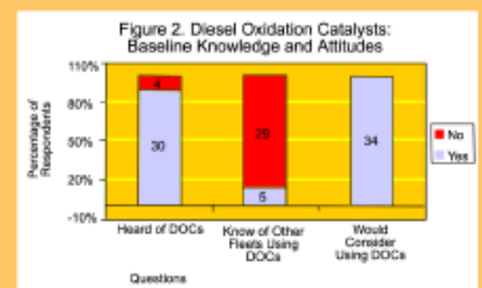
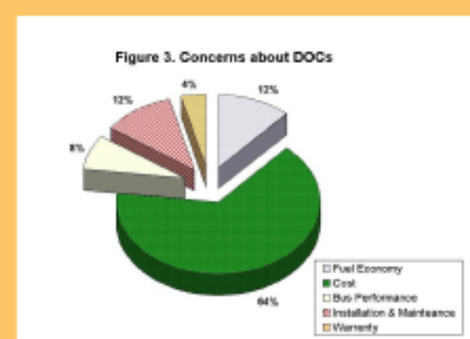
The Results:

√ The TD's are well informed about the health effects caused by exposure to diesel exhaust and actions they can take to reduce emissions.

√ All believed that no idling policies were a good "first-step" in reducing harmful emissions, but felt that enforcing these policies could be extremely difficult. More than half had adopted additional practices. *(e.g. designing queuing and parking strategies that minimize children and driver's exposure to exhaust; starting buses away from schools; and using cabin heaters to keep buses warm without running the engines.)*

√ Over 80% of districts were well informed about pollution control equipment, but had little "hands on" experience with pollution control devices. Their primary concerns about DOC's were: difficulty with installation, and upfront and ongoing maintenance costs and engine performance.

Driver Poll



Fleet Manager Poll