AIR QUALITY BASICS: The Dangers of Diesel Particulates

In 2005, the Houston-Galveston region experienced a recording-breaking year for air pollution from fine particulate matter. Recent data indicate that the area came dangerously close to exceeding federal health standards, as it does for ground-level ozone. Particulate matter is linked to many diseases and deaths. However, one category of particulate matter causes the greatest health concern – diesel particulates.

Various reports indicate that diesel particulates, with their mix of chemicals, metals and toxics (see graphic), cause more cases of cancer each year than all other air toxics combined. In fact, air monitoring data from the Houston region suggest that diesel particulates create an added lifetime cancer risk that's typically 360 in a million.[1] That's much greater than EPA's acceptable risk level, which is 1 in a million. A report by the nonprofit Clean Air Task Force (CATF) puts the threat even higher, and ranks the Houston metropolitan area as 6th in the nation for this particular cancer risk.

The CATF report also examines non-cancer health impacts related to diesel particulates. The group's website (*www.catf.us*) estimates that diesel particulates cause 356 premature deaths, 444 non-fatal heart attacks, 11,493 asthma attacks and 296 cases of chronic bronchitis per year for Houston area adults.

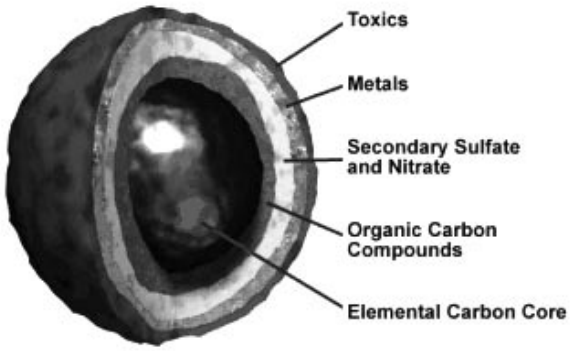
Addressing the diesel pollution problem

Many factors figure into the Houston region's diesel pollution problem. However, much of it stems from the city's industrial areas and associated activities. Take shipping, for example: ships, trains and trucks all use diesel fuel, and are involved in transporting various industrial and petrochemical products. Other notable sources of diesel pollution include construction equipment and buses.

Fortunately, over the past decade, the Environmental Protection Agency has enacted new rules and regulations regarding diesel engine emissions. Most apply to onroad vehicles and to industrial, agricultural and construction equipment. Once the rules are fully implemented, and older diesel engines have been retired, they are expected to reduce diesel pollution from these sources by more than 90 percent.

However, it may take several decades before older vehicles and equipment are retired. Diesel engines typically have a long life, and they can be expensive to replace. In the meantime, many groups are developing and promoting solutions for more immediate reductions in diesel pollution.

Composition of Fine Particulates in Diesel Pollution*



**Reprinted from the website of the Clean Air Task Force.*

Diesel equipment

One of the main initiatives regarding heavy equipment involves retrofit and replacement programs. These programs often offer grants or incentives to companies to help them upgrade or replace their older diesel equipment. One such initiative is the Texas Emissions Reduction Program (TERP), which was created by the state in 2001. The state is currently accepting TERP applications from the Houston region. For details, visit *www.tceq.state.tx.us/implementation/air/terp*.

Trucks

One of the most innovative approaches for reducing diesel emissions from big trucks actually involves the times when they aren't on the road. Truckers often keep their trucks running overnight because they sleep in their cabs and need to power their air conditioning and electricity. However, thanks to new electrified truck stops, truckers can use a high-tech hook-up to get electricity, AC and even cable TV and internet access, eliminating the need to idle truck engines. One such high-tech truck stop is located in Baytown, Texas.

School buses

Diesel pollution from school buses is of special concern, because studies show that children inside these buses can be exposed to levels of diesel particulates that are 5 to 10 times higher than outside. New buses are up to 95% cleaner than those of two decades ago, but schools have limited funds to pay for new buses. In the Houston region, more than one-third of school buses are ten years old or older, and put out as much as 60 times more pollution than new or retrofitted buses. Groups like Environmental Defense advocate programs that will help schools replace their buses or retrofit them with filters that bring emissions into line with new-bus standards.

These efforts are a step in the right direction. However, little has been done to address pollution from marine vessels and trains, except to require the use of new low-sulfur diesel fuel. We've made progress, but there's still a long way to go.

[1]Galveston-Houston Association for Smog Prevention, "Where Does Houston's Smog Come From?" 2003.