California Environmental Protection Agency

Air Resources Board • Department of Pesticide Regulation • Department of Toxic Substances Control
Integrated Waste Management Board • Office of Environmental Health Hazard Assessment
State Water Resources Control Board • Regional Water Quality Control Boards

Terry Tamminen
Agency Secretary

Arnold Schwarzenegger
Governor

January 12, 2004

Honorable Michael O. Leavitt, Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Dear Administrator Leavitt:

Congratulations on your appointment as Administrator of the United States Environmental Protection Agency (U.S. EPA). As the Secretary of the California Environmental Protection Agency (Cal/EPA), I look forward to working with you and the staff of the U.S. EPA to promote and protect the public health of our citizens.

In pursuit of that goal, I am writing today to recommend that the U.S. EPA pursue adoption of improved standards for diesel fuel. Specifically, I urge you to increase the width of the proposed 15 ppm sulfur limit, and to establish an effort to reduce particulate matter (PM) and oxides of nitrogen (NOx) emissions from the in-use diesel fleet. In addition to reducing sulfur levels, I believe great benefits could be obtained by introducing higher quality diesel fuels that provide significant emissions reductions by lowering aromatic hydrocarbon content and increasing the cetane number.

Across the country, there is great concern about pollution from diesel engines. The NOx pollution and black soot emitted from exhaust pipes of trucks, buses, construction equipment, locomotives, and marine vessels pose a significant health threat to the public. We commend the U.S. EPA for the steps it has taken to reduce diesel pollution by adopting stringent NOx and PM exhaust standards for new trucks and by requiring very low sulfur (15 ppm) diesel fuel for on-road sources. The requirements for on-road diesel fuel will be phased in starting in 2006, and over time, they will greatly reduce diesel pollution.

We are also pleased that the U.S. EPA has proposed to further control emissions from nonroad diesel engines. We support the implementation of the proposed PM and NOx standards and the requirements for 15 ppm sulfur diesel fuel as soon as possible. However, we believe that it is critical that the U.S. EPA extend low sulfur fuel requirements to fuels used by locomotives and marine engines for implementation in the same timeframe chosen for nonroad engines.

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It will take three decades for the new cleaner engines to fully replace existing engines. During this period the public will be exposed to excessive levels of diesel pollutants. In the interim, state and local agencies will be asked to accelerate the reduction of diesel pollution. Improving diesel fuel quality by reducing aromatic hydrocarbon levels and increasing cetane levels is one of the more cost-effective means available to achieve emission reductions from the millions of diesel engines in use today.

California has required improved diesel for 10 years, and Texas has adopted a similar program to reduce emissions from both on-road and off-road diesel engines. But, as you know, state and regional fuel specifications can not be practically applied in areas with small fuel markets, and are not effective in reducing emissions from the consumption of the fuels purchased outside of regulated areas. A diesel fuel program implemented nationwide would be both more effective and desirable.

Cal/EPA strongly urges the U.S. EPA to develop and adopt improvements to the nationwide diesel fuel standards for on-road and off-road applications. The specifications for this improved fuel could be modeled after the programs implemented in California and Texas. These programs rely upon a combination of fuel changes – primarily a reduction in aromatic hydrocarbon content and an increase in cetane levels – to reduce emissions, both of which could be achieved through the use of gas-to-liquids diesel fuel. Both programs allow fuel suppliers great flexibility in meeting the programs' requirements, so long as the desired emissions benefits are achieved.

Information further supporting our recommendations is attached to this letter. We hope that you will have your staff review it carefully, and initiate a rulemaking process to gain the support of other stakeholders.

If we can provide assistance in the effort, please contact me at, (916) 323-2514, or Dr. Alan C. Lloyd, Chairman, California Air Resources Board, at (916) 322-5840.

Sincerely,

Terry Tamminen
Agency Secretary

Enclosure

cc: Alan C. Lloyd, Ph.D, Chairman
Air Resources Board
1001 I Street
Sacramento, California 95814

Attachment

Additional Information Supporting the California Air Resources Board's Request for a Nationwide Diesel Fuel Standard

The United States Environmental Protection Agency (U.S. EPA) estimates that by 2007 heavy-duty diesel vehicles will account for 28 percent of mobile source oxides of nitrogen (NOx) emissions and 20 percent of mobile source PM10 emissions. These proportions are even higher in many urban areas.

The U.S. EPA has identified diesel particulate matter and diesel exhaust organic gases as a Mobile Source Air Toxic that is likely to be carcinogenic to humans by inhalation at occupational and environmental levels. In their 2002 health assessment for diesel engine exhaust, the U.S. EPA concluded that long-term inhalation exposure to diesel exhaust is likely to pose a lung cancer hazard to humans and can damage the lung in other ways depending on exposure levels and duration. Short-term exposures can cause irritation and inflammatory symptoms of a transient nature, these being highly variable across the population. The assessment also indicates that evidence for exacerbation of existing allergies and asthma symptoms is emerging.

In 1998 as part of continuing efforts to protect public health and welfare, the California Air Resources Board (CARB) identified the particulate matter in diesel exhaust (diesel PM) as a toxic air contaminant and likely carcinogen. The CARB staff estimates the cancer risk in California posed by diesel PM exceeds the risk posed by all other identified toxic air contaminants combined.

The State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) have evaluated the nationwide risk from exposure to diesel exhaust and reported their findings in the report: *Cancer Risk from Diesel Particulate: National and Metropolitan Area Estimates for the United States*. They estimate that diesel exhaust is responsible for 125,000 cancers in the U.S. They found that this was "not only cause for concern, but reason for swift and certain federal action."

Fuel standards are a critical element of the states' strategies to reduce air pollutants and protect human health. California's diesel fuel program, implemented in 1993, has provided significant emissions and public health benefits.

- NOx emissions have been reduced by 7 percent , PM emissions by 25 percent, and sulfur dioxide emissions by 80 percent.
- PM emission reductions of about 11 percent and all of the 7-percent NOx emission reductions are due to the aromatic hydrocarbon standard or emission-equivalent formulation specifications.
- Reductions in the aromatic content of California diesel reduces emissions of several toxic substances other than diesel PM, including benzene and polynuclear aromatic hydrocarbons (PAHs).

The air quality benefits of the California diesel fuel program were achieved at a relatively low cost. On average, a gallon of California diesel has a wholesale cost of about one to four cents more than U.S. EPA on-road diesel sold in nearby states. Texas has adopted a low emission diesel fuel program patterned after California's.

The U.S. EPA understands and acknowledges the emission benefits of cleaner diesel fuel. It accepts California's program as part of the state's SIP. In 2001 the U.S. EPA approved Texas' SIP revisions for its diesel fuel program. In 2007, the Texas diesel fuel program is expected to reduce statewide NOx emissions from on-road and off-road engines by about 30 tons per day.

Many other countries have stronger standards for various fuel properties; for example, a higher cetane number than the current national standard of 40. Both India and Mexico have cetane limits of 48, Japan has a standard of 50 and the European Union EN590 has a standard of 51. While California does not have a specific minimum standard for cetane, the cetane number for the California diesel fuel pool has consistently averaged between 50 and 53, depending on the time of the year and portion of the state sampled. Texas has adopted a statewide minimum cetane standard of 48.

Cetane enhancement through the use of additives was recently listed by the U.S. EPA in its voluntary diesel retrofit program as a verified retrofit technology for reducing NOx emissions. The objective of the U.S. EPA's Voluntary Diesel Retrofit Program Verification Process is to introduce verified technologies to the market as cost effectively as possible, while allowing customers to choose verified technologies that will provide emission reductions as advertised. According to the U.S. EPA's documentation for the enhanced cetane control technology, increasing the cetane number from the nationwide average of about 45 to an average of about 52 would reduce NOx emissions by about 3 percent from all diesel engines using the fuel, both on-road and off-road.

Heavy-duty diesel engines emit more than 8,000 tons per day of NOx nationwide. An increase in cetane number resulting in a 3 percent NOx emissions reduction would reduce nationwide NOx emissions by about 240 tons per day. The improvement of fuel quality through an increase in cetane number will also decrease emissions of hydrocarbons, particulate matter, and some toxic compounds.

Historically, diesel engines have had very long useful lives with the capability of being rebuilt numerous times. For older engines that do not have to meet the 2007 emissions standards, cleaner diesel fuel programs can play an important role in achieving near-term air quality goals. The main benefit of a cleaner diesel fuel strategy is that emissions reductions throughout the vehicle fleet are realized as soon as the fuel is introduced. This is in contrast to new vehicle standards which take effect over time due to vehicle turnover.

By not improving the aromatic and cetane quality of diesel fuel nationwide, states are being deprived of a very cost-effective strategy for reducing NOx and PM emissions.