

May 10, 2001

Mr. Paul Miller
Commission for Environmental Cooperation
393 rue St-Jacques Ouest, Bureau 200
Montreal Quebec Canada H2Y 1N9

Dear Mr. Miller:

The Northeast States for Coordinated Air Use Management (NESCAUM) appreciates the opportunity to comment on the *North American Trade and Transportation Corridors Environmental Impacts and Mitigation* study prepared by ICF Consulting. NESCAUM is an association of the air pollution control programs in the states of Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Rhode Island, and Vermont. NESCAUM provides technical advice and policy guidance to our member states on air pollution issues.

Heavy-duty truck traffic and related emissions in the Northeast is a major concern to the states in our region. While heavy-duty diesel trucks represent approximately 2% of the vehicles registered in the region, emissions from this source comprise 26% of mobile source nitrogen oxides (NOx) pollution. All of the states in the region with the exception of Vermont are in non-attainment for the National Ambient Air Quality Standard (NAAQS) for ozone. Reducing diesel pollution is a key element in state efforts to attain the NAAQS for ozone.

In addition to ozone precursors, diesel engines contribute to elevated levels of fine particles and other toxics such as formaldehyde, acetaldehyde, and acrolein. Ambient levels of diesel related air toxics such as formaldehyde exceed state health risk benchmarks in all areas of the Northeast. Diesel particulate has been labeled a toxic air contaminant by the California Air Resources Board (CARB, 1998). Whole diesel exhaust has been labeled a probable human carcinogen by EPA (draft 2000), the National Institute for Occupational Safety and Health (1988), and the International Agency for Research of Cancer (1989).

NESCAUM supports the Commission for Environmental Cooperation's effort to study the impact of emissions from increased trade due to the North American Free Trade Agreement (NAFTA). The goal of identifying current and future air quality impacts that occur as a result of the development of North American trade and transportation corridors

is an important one. We ask that you consider several specific comments on the study which are detailed below.

Natural Gas Vehicle Emissions

The study states “the use of natural gas for heavy-duty trucks is an effective strategy to reduce emissions through the next decade.” But by 2020, according to the study “vast improvements in diesel engine emissions means that natural gas will probably not offer an emission reduction in the Canada-U.S. corridors.” This could be the case if we assume (like the PART5 and MOBILE models do) that diesel engine emissions do not deteriorate over time. However, studies have shown that diesel engine emissions increase over time due to engine wear, mal maintenance, and tampering. A recent Colorado School of Mines study (1999) documented a 50% increase in diesel PM and HC emissions due to common maintenance problems. A study published by the Bureau of Mines (1988) on mechanically controlled diesel engines (which represent approximately 40% of the Northeast fleet) demonstrated that PM, HC, and CO emissions increase significantly over time with engine age. If deterioration related emissions increases are included in an emissions comparison, diesel engines compare less favorably with natural gas engines.

In addition to criteria pollutants, toxics are important to consider when comparing diesels and natural gas vehicles. Given the designation of diesel particulate as a toxic air contaminant by CARB and diesel exhaust as a probable human carcinogen by EPA it is important to reduce public exposure to particulate and other toxics from diesels. Natural gas vehicles can play an important role in reducing exposure to diesel exhaust. Natural gas engines emit some of the same toxics that diesel engines do such as carbonyls, non-methane hydrocarbons, alkynes, aromatics, and PAH but the emission rate from natural gas vehicles is typically much lower than from diesels. Furthermore, controls available to reduce diesel engine toxic emissions can be also placed on natural gas engines to virtually eliminate natural gas vehicle toxic emissions.

Truck vs. Rail Emissions

The ICF report authors estimated the increase in freight related travel over the next 20 years in five NAFTA corridors. From these estimates a projection of tons of emissions was then calculated using MOBILE5, PART5 and other methods. Once a comparison in emissions had been made, study authors then recommended a number of steps that could be taken by states, provinces, and federal governments to reduce NAFTA related pollution. These recommendations include: reducing delays at border crossings; increasing the use of low sulfur diesel fuel in Mexico; reducing the fraction of empty trucks travelling on roads; allowing the use of longer combination vehicles in NAFTA corridors; and increasing allowed truck weight. The report states that some of these measures would shift the transportation of freight from rail to trucks. The report also states that given dramatically reduced diesel engine emission standards (beginning in 2007) rail emissions will be greater than for trucks in 2020.

It is important to note the method used to calculate emissions from trucks and locomotives may provide an overly optimistic view of future truck emissions relative to locomotive emissions. ICF Consulting assumed that all new trucks (later than 2007) would be emitting at the 2007 standard. Similarly, study authors assumed that new locomotives (manufactured after the new emission standards are implemented) will be emitting at the new standards.

Trucks on the road in 2020 manufactured before 2007 (8.4% of the total truck fleet according to ICF) were assumed to meet the emission certification level for the given year they were manufactured. ICF assumed that pre-control locomotives operating in 2020 (and this fraction of the locomotive fleet is quite a bit larger than the 8.4% for trucks since locomotive engines are very slow to be replaced) would be rebuilt to new, cleaner standards. However, for the fraction of locomotive engines not assumed to be rebuilt, ICF used emission factors from EPA's document entitled "Criteria Pollutant Emissions for Locomotives" (1997 420-F-97-051). The emission factors in this document were gathered from older locomotive engines and have deterioration figures built into the base emission data.

Using these emission factors for even a small percentage of the locomotive fleet would increase the overall emission rate for locomotives significantly, since these emission factors are taken from older, high emitting locomotives and include deterioration factors. This could give trucks an unfair emissions advantage since emission factors used for older trucks did not include any deterioration and are based on emissions from brand new engines. In a final version of the report, ICF should clarify their method and either use deterioration factors for trucks as well as locomotives or use only emission factors without deterioration for both sources.

Thank you for the opportunity to provide comment on this report. We look forward to working with you as you develop recommendations on reducing NAFTA related emissions.

Very truly yours,

Coralie Cooper
Mobile Source Analyst

Cc: Arthur Marin