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Washington, D.C. 20460

To Whom It May Concern:

The Northeast States for Coordinated Air Use Management (NESCAUM) appreciates the opportunity to submit comments on EPA's Notice of Proposed Rulemaking to control the emissions of hazardous air pollutants from mobile sources. NESCAUM is a regional association that provides technical, policy and programmatic assistance on air quality issues to the six New England states, New York, and New Jersey. NESCAUM and its member states have been following the EPA's efforts on this rule since the 1990 Clean Air Act. Reducing the potential adverse health and environmental impacts of mobile source toxics in the Northeast is extremely important to air quality regulators in the region.

The proposed rule takes a step toward reducing mobile source air toxic emissions and exposure. However, NESCAUM believes that the proposal falls short of achieving the level of control needed to protect public heath and to satisfy Congressional intent.

Mobile sources such as cars, trucks, buses, construction equipment, lawn and garden equipment, snowmobiles, and boats emit pollutants that cause cancer or other adverse health effects. Mobile source air toxics clearly pose a significant public health threat in the northeastern US and public exposure to toxic emissions from mobile sources is a major concern to health officials and air quality regulators in the Northeast. The Northeast states are concerned primarily because they have pursued numerous regulatory and non-regulatory emission reduction programs for more than a decade to reduce emissions from mobile sources and their fuels, yet the evidence illustrates that ambient concentrations of these compounds remain at unacceptably high levels.

State and local air pollution control officials' concerns about the health risks of mobile source air toxics are echoed by a wealth of information from the EPA and other agencies demonstrating that mobile sources (both on-highway and non-road) and their fuels are a dominant emission source category for a group of extremely potent hazardous air pollutants in all areas of this country. The 1999 National-Scale Air Toxics Assessment (NATA) indicated that 50 percent of cancer risk and 74 percent of non-cancer risk related to breathing outdoor air results from mobile source air toxics emissions. Northeast state modeling and monitoring data indicate that ambient

concentrations of acetaldehyde, benzene, 1,3-butadiene, formaldehyde, acrolein, and diesel particulate matter exceed risk screening thresholds for cancer and, in some cases, non-cancer effects throughout the region. A review of emissions inventory data concluded that mobile sources dominate the primary emissions for these pollutants in all Northeast states.

While NESCAUM supports EPA's proposal for a benzene gasoline average refinery standard, the introduction of gas can standards, and the vehicle cold start emissions standard, NESCAUM believes this rule needs to go much further to reduce overall mobile source air toxics emissions. Given the pervasive risk associated with a long list of toxic air pollutants - including diesel particulate matter - NESCAUM strongly urges the Agency to consider a broader range of additional controls in the final rule, and asks that the rule be strengthened in the following ways:

- Include a more stringent national refinery average benzene standard of 0.52 volume percent in the final proposal and consider an expedited implementation schedule;
- Establish a nationwide per gallon benzene cap for both conventional gasoline (CG) and reformulated gasoline (RFG) no higher than 1.3 volume percent;
- Include kerosene containers and utility jug regulations such as those finalized by the California Air Resources Board (CARB) in the final rule;
- Commit to further reducing benzene and a broader range of mobile source air toxics in either a supplemental rule or future rulemakings for mobile sources.
- Commit to conducting a more thorough assessment of control options for mobile source air toxics once current models (e.g., the Complex model, NONROAD, NMIM, and MOBILE) are changed to include updated information on fuel formulations and vehicle technology assumptions.

NESCAUM has provided more detailed comments in the attached document.

Sincerely,

Coralie Cooper
Transportation Program Manager

Attachment: NESCAUM detailed comments

NESCAUM Comments on the MSAT Notice of Proposed Rulemaking
Attachment

I. General Comments

EPA has not fulfilled the emission reduction requirements of Section 202(l)(2)

The Clean Air Act instructs the EPA to consider both standards for fuels and/or vehicles as part of the EPA's requirement under Section 202(l) to control motor vehicle toxic emissions. The Act specifically states "the standards may be for fuel or vehicles or both taking into consideration standards established under subsection (a), the availability and costs of technology, noise, energy, and safety factors. The regulations, shall, at a minimum, apply to emissions of benzene and formaldehyde" and "reflect the greatest degree of emission reduction achievable through the application of technology which will be available." In contrast to this clear direction from Congress, the EPA chose to focus on benzene reductions and to achieve only very modest reductions, if any, in other MSATs in the proposed rule.

With regard to controlling formaldehyde, the EPA states that emissions of formaldehyde "can only be effectively reduced by reducing use of the octane enhancer methyl tertiary butyl ether (MTBE)… In recent years, many states have banned the use of MTBE because it has leaked from storage tanks and caused significant groundwater contamination. More recently, in the wake of the removal of the oxygenate requirement in the Energy Policy Act of 2005, many refiners are taking action to remove MTBE from their gasoline as soon as possible."

EPA concludes that:

> "As a result, MTBE use and the resulting formaldehyde emissions are expected to continue to decline, and no additional federal action appears warranted at this time"

In the proposed rule, the EPA does not consider a host of motor vehicle control options available for highway and nonroad engines to reduce both benzene and formaldehyde emissions. In the Tier 2 rule, the 2007 heavy-duty diesel rule, and the nonroad rule finalized in 2004 for example, the EPA conducted comprehensive technology assessments for controlling motor vehicle and nonroad engine pollution. A similar, equally comprehensive technology assessment should be conducted prior to finalizing the 202(l) regulation. A host of control options exists to control mobile source toxic emissions, which have not been evaluated in this proposed rulemaking. Details currently available and potential control programs to reduce mobile source toxics are provided in section III below.

Additional reductions in benzene are needed

Additional reductions in benzene are needed for the following reasons:

a) Even the simplest risk assessment predicts that exposures to benzene (directly and indirectly from the use of mobile sources) are very high throughout the US. The RIA on p. 3-48 stated that: "… based on average census tract risks, the vast majority of the population experiences risks between one in a million (1x10 -6) and one in ten thousand ($1x10^{-4}$). However, the number of people experiencing risks above one in a hundred thousand ($1x10^{-5}$) increases from 214 million in 1999 to 240 million in 2030."
b) Benzene may be even more potent than the present Unit Risk Factor in IRIS suggests. In the RIA it is stated that the cancer potency of benzene may be "supralinear" (see p. 1-15) and that metabolism may be saturated at 1ppm. In the RIA on p. 1-17 it is stated that health effects from occupational exposures to benzene have been seen below the 1ppm level. Additionally, on p. 3-69, the RIA states, "As discussed in Chapter 1, the current unit risk estimate for benzene may underestimate risk from acute nonlymphocytic leukemia, because some recent epidemiology data, including key studies published after the most recent IRIS assessment, suggest a supralinear rather than linear dose response at low doses."
c) On p. 3-57 of the RIA it is stated that, "The fuel benzene standard proposed in this rule will substantially reduce inhalation cancer risk from exposure to benzene emitted by mobile sources across the United States." This reduction is then estimated to be about 4-9%. Surely this is not enough to address the excessive exposures to benzene that are currently experienced around our country, and especially in densely populated urban areas.

Additional reductions in the emissions of other MSATs are needed

Based on the experiences of the Northeast states with monitoring, modeling and controlling air toxics in the Northeast, the need for more reductions in MSAT emissions is evident. For example, monitoring data for Burlington, VT for 1999 documents that ambient air concentrations of benzene exceeded health benchmarks (10^{-6} cancer risk) by roughly a factor of 20. Consequently, an urban-scale benzene modeling study was applied to the Burlington area for 1999. This study demonstrated that annual ambient concentration impacts modeled in Burlington from motor vehicles over the whole domain were anywhere from 5 to 20 times the Vermont health standard (0.12 $\mu g/m^3$) for benzene. Seventy six percent of this modeled local source annual benzene impact was due to motor vehicle traffic.

The Regulatory Impact Analysis (RIA) (EPA 420-D-06-004) also supports the need for more reductions in MSAT emissions. The primary analysis in the RIA is based on a National Scale Assessment (beginning with NATA 1999 and then projecting into future years). While this National Scale approach may be sufficient to establish that mobile source air toxics are a serious national problem, it falls far short of describing the full scale of the problem. It does not address the much higher exposures experienced by people living in homes with attached garages, and the elevated exposures of people traveling in their cars. Even more serious in the Northeast is the much higher exposures experienced by persons living within 200m of roadways. These issues

are discussed in the RIA but the full burden on the American people has not been quantified. EPA has the responsibility to protect the millions of people who live in our most densely populated urban areas.

Of additional concern are results from recent studies which reveal exposures that greatly exceed ambient monitored levels of mobile source air toxics in "microenvironments" in the Northeast. Recent studies of microenvironment exposure levels in the Northeast concluded that:

- Levels of benzene found in pedestrian and bicyclist zones were approximately 10 times higher than typical ambient levels due to vehicle exhaust;
- $PM_{2.5}$ levels at commuter train stations in Boston were found to peak at 1,000 micrograms per cubic meter - 50 to 100 times higher than ambient levels.
- Construction workers operating post-1996 model year nonroad equipment were exposed to 8-hour $PM_{2.5}$ averages as high as 600 micrograms per cubic meter;
- An additional study outside of the region found that vehicle drivers are exposed to PM and benzene levels that are 10 to 16 times higher than ambient levels.

These recent analyses add to the body of evidence supporting the need for substantial reductions in mobile source air toxic emissions. In light of the public health threat posed by mobile source air toxics, a more comprehensive evaluation of toxics risk and additional control measures are needed from EPA.

We believe that the RIA, in exploring the areas not addressed by a National Scale analysis, makes a good case for doing even more to reduce the emissions of a wide array of air toxics from all types of mobile sources. Beyond the risk quantified in that document, there are many more risks from exposure to MSAT that have not been quantified. This increases the urgency for additional MSAT reductions in the Northeast states.

In the RIA on p. 3-43, several MSAT are flagged as “significant contributors to cancer risk.” These include 1,3-butadiene, acetaldehyde, napthalene and hexavalent chromium. Yet the proposed rules do very little to lower emissions of these significant pollutants. Additionally, other MSATs of concern in the Northeast are formaldehyde and diesel particulate matter which would also be numbered among national priorities if the risk assessment handled them properly. (see Technical Comments on the Risk Assessment, below).

Further, this rulemaking will only provide small reductions in MSAT risk in areas that currently use RFG and have adopted the California Low Emission Vehicle (LEV) program. An examination of the information included in this rulemaking indicates that the predicted cancer risk estimates in these areas will remain steady or actually increase between now and 2030.

II. Specific Comments On Rule Elements:

Refinery Average Benzene Standard:

National 0.62 volume percent refinery average benzene standard:

NESCAUM urges EPA to set a more stringent national benzene average refinery standard of 0.52 volume percent. EPA evaluated the feasibility of introducing the more stringent standard in the RIA and found that the more stringent standard is technically feasible and would only increase gasoline prices by .36 cents per gallon. Some refiners are currently producing gasoline with benzene levels as low as 0.41 volume percent.

Averaging Banking and Trading (ABT) Program:

NESCAUM urges EPA to establish a sunset date for the Averaging Banking and Trading (ABT) program proposed in the rule. The ABT program will provide refiners with flexibility in meeting the national average refinery standard and is appropriate as a phase-in mechanism for the national average standard. However, the ABT program should not continue indefinitely.

Proposed implementation dates:

The NESCAUM states urge EPA to implement the benzene average standard no later than the proposed date of 2011. We ask that the Agency seriously consider an earlier implementation date.

Maximum Benzene Cap:

The NESCAUM states strongly concur with EPA's decision to maintain the 1.3 volume percent maximum per gallon cap that is currently in place in the RFG II program. Further, we urge EPA to extend the current RFG maximum benzene cap of 1.3 volume percent, per gallon to the entire pool of gasoline - both conventional and RFG. Setting a maximum per gallon cap will ensure that trading in benzene credits from refiner to refiner does not lead to high levels of benzene in gasoline while at the same time providing refiners with flexibility in meeting the regulation.

Anti-backsliding and Anti-Dumping Provisions:

NESCAUM urges EPA to maintain the toxics performance requirement (anti-backsliding provision) established in the MSAT I rule. The MSAT I rule justified the establishment of a toxics performance standard in the following way:

> "A toxics performance requirement will limit emissions of [benzene and formaldehyde] along with emissions of 1,3-butadiene, POM and acetaldehyde. Thus, while refiners will have the ability to adjust fuel

> parameters in ways that will increase the emissions of one or more of these pollutants, any such increase must be offset by reductions in the emissions of the other pollutants. All of the pollutants covered by the toxics performance control are carcinogens. The nationwide inventories and ambient concentrations of all of these five pollutants are heavily influenced by motor vehicle emissions."

We believe the toxics performance standard (anti-backsliding provision) is still justified and important for the same reasons EPA stated in the MSAT I rule. The anti-backsliding provision in RFG is currently achieving a 29.5 percent mass reduction (total for exhaust and evaporative emissions) in five MSATs (benzene, formaldehyde, POM, 1,3 butadiene, and acetaldehyde). Significant changes in gasoline formulation may result from the following: 1) the removal of the oxygen mandate (May, 2006); 2) state MTBE bans; 3) the use of ethanol to replace MTBE in RFG; and 4) the renewable fuels standards established by the Energy Policy Act of 2005. Given the uncertainty in how changes in gasoline formulation will impact MSAT emissions, the NESCAUM states urge EPA to maintain the anti-backsliding provisions of RFG. At a minimum, the Northeast states need to maintain the current level of protection afforded by the RFG program and not remove existing protections through this rulemaking.

Similarly, given the lack of restrictions in the proposed averaging banking and trading program, and the possible result of high benzene levels in conventional gasoline, we urge EPA to maintain the anti-dumping provisions of the MSAT I rule.

Removal of the NOx Performance Standard:

In this NPRM, EPA has proposed eliminating the Complex model based NOx performance standard and CG anti-dumping provision. NESCAUM urges EPA to maintain the current NOx performance standard for RFG and anti-dumping provision for CG.

Vehicle Cold Start Emissions Standard:

The NESCAUM states generally agree with the approach taken for control of cold start emissions from motor vehicles. However, given that the controls require only calibration and software changes and not hardware changes, we encourage EPA to establish an earlier program start date than the dates proposed.

Portable Gasoline Containers:

Many states in the Northeast are adopting California's more stringent gas can, utility jug, and kerosene container regulation in 2007. The NESCAUM states urge EPA to require introduction of the PGC standards beginning in 2008, rather than the proposed implementation year of 2009. In addition, we urge EPA to include the standards for utility jugs and kerosene containers that have been established by California. We also urge EPA to evaluate regulations for controlling

spillage from portable containers.

III. EPA's Assessment of Control Options for Reducing MSATs is Incomplete

This section presents a number of options for controlling 1-3 butadiene, benzene, aldehydes, acrolein, and other toxins that could be introduced to control mobile source air toxics.

1. **Introduce on-board diagnostics (OBD) for all heavy-duty vehicles.** Currently, on-board diagnostics are not proposed for trucks over 14,000 pounds. OBD would allow for optimization of combustion in gasoline engines and reduce excess hydrocarbon emissions. EPA discusses the development of OBD for heavy-duty trucks over 14,000 lbs. in the MSAT proposal and the final MSAT rule should contain a commitment to this in the regulatory section.
2. **Require the use of emission control devices in nonroad gasoline engines**. Nonroad gasoline engines contribute up to 50% of all benzene emissions in some areas of the Northeast according to state inventories. A well developed technology exists to reduce benzene, 1-3 butadiene, and other toxics from gasoline engines: catalytic converters. Handheld, non-handheld, marine, large spark-ignited, and recreational gasoline engines could all be equipped with catalysts. California has introduced nonroad gasoline engine regulations requiring catalysts in recent years. The control devices can reduce benzene, 1-3 butadiene, and other toxics by 70% or more at a low cost. For example, a catalytic converter for a chain saw costs from $4 to $6.

   California currently regulates stern drive and inboard gasoline engines used in recreational marine vessels.1 Stern drive and inboard engines operating outside of California are currently unregulated by EPA. EPA should commit to implementing similarly stringent and technically feasible controls on this and other nonroad gasoline sectors to achieve the maximum possible reduction in MSAT emissions from an important category of engines.
3. **Require reductions in gasoline aromatics content.** Aromatics comprise approximately 26% of gasoline by volume. Reducing the aromatic content of gasoline could reduce benzene, toluene, and other mobile source air toxics. In addition, aromatic emissions result in secondary organic aerosol formation. Thus, reducing the aromatics content of gasoline will also result in reductions in fine particulate emissions from light duty vehicles and nonroad gasoline engines. Approximately 3,000 tons of fine particulate are converted from aromatics emissions from light duty on road and nonroad engines each year in the Northeast. Reducing aromatics could greatly reduce these emissions
4. **Require greater exhaust and evaporative emissions reductions.** California has finalized evaporative emissions standards for Partial Zero Emitting Vehicles (PZEVs) that are significantly more stringent for light duty vehicles than the federal Tier 2 standards. CARB

1 State of California Air Resources Board Final Statement of Reasons for Rulemaking Emissions Standards for New 2003 and Later Spark Ignition Inboard and Sterndrive Marine Engines

estimates that the additional per vehicle cost for a PZEV evaporative system is approximately $10.2 EPA should explore the introduction of a similar standard for some vehicles. California has also finalized more stringent tailpipe HC emissions standards that could be adopted nationally.

5. **Require further improvements to diesel fuel.** EPA should regulate the PAH content of diesel fuel to reduce PAH emissions from diesel engines.
6. **Require existing trucks, non-urban buses, and urban buses not affected by the Urban Bus Retrofit Program to be retrofitted with oxidation catalysts** at the time of engine rebuild. While the 2007 highway engine rule will greatly reduce aldehyde and particulate emissions, existing trucks and buses will be on the road for many years to come. Older engines emit higher amounts of PM and HC due to lower emission standards for older engine models, and due to engine emissions deterioration. Retrofitting these highly durable vehicles is important to achieving toxic emission reductions in the near-term. The federal Urban Bus Program has resulted in over 10,000 urban bus retrofits and lower toxic emissions in many urban areas of the country. Expanding this program would greatly reduce toxic emissions from heavy-duty trucks and buses.

IV. Additional Comments

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Implementation Time-line of the Proposed Rule is Inadequate

From a public health standpoint, waiting until 2030 for the full effect of these proposed rules to take place is insufficient. That timeframe represents almost half of a lifetime for most people, and also means that an entire generation of children (who may be especially susceptible to MSAT exposures) would experience extremely high exposures to a whole host of air toxics as well as the criteria pollutants, ozone and PM2.5.

Additionally, the toxic effects of MSATs on children may be underestimated. The most recent cancer guidance from EPA indicates that additional factors might be necessary to more accurately estimate the risk to children who are exposed to carcinogens. On p. 3-66 in the RIA it is stated: "…the 1999 NATA does not include default adjustments for early life exposures recently recommended in the Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. Incorporation of such adjustments would lead to higher estimates of lifetime risk." It is imperative that MSAT reduction programs be implemented as soon as possible.

2 CARB "The 2003 Amendments to the California Zero Emission Vehicle Program Regulations Final Statement of Reasons," January 2004

EPA has not addressed the role of toluene, xylene and higher aromatics in benzene formation

Although toluene and xylene are listed as MSATs there appears to be no mention of their role as precursors to benzene in the proposal. It is well documented that toluene, and other substituted benzene compounds, can be precursors to benzene.[3] Although benzene can be readily formed from toluene by the catalytic converter.[4]

> The Preamble of the 2001 MSAT rule stated:
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> Second, mobile source air toxics are formed through engine combustion processes. A significant amount of automotive benzene comes from the incomplete combustion of compounds in gasoline such as toluene and xylene that are chemically very similar to benzene. Like benzene itself, these compounds occur naturally in petroleum and become more concentrated when petroleum is refined to produce high octane gasoline.

The EPA also gives the impression that toluene and xylenes "occur naturally in petroleum and become more concentrated when petroleum is refined to produce high octane gasoline" when, in

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[3] A paper published by EPA authors in 1980 stated: "Combustion chemistry can produce benzene from fuel components other than benzene..." and "Dealkylation of higher aromatics appears a significant source under some vehicle operating conditions [fuel rich combustion]."

Black, F. M., E. High and J.M. Lang. "Composition of Automobile Evaporative and Tailpipe Hydrocarbon Emissions," *Journal Air Pollution Control Association* 30, 1261-1221 (1980). Some other papers on this topic include: Pelz, N., N.M. Dempster, G.E. Hundleby and P.R. Shore, "The Composition of Gasoline Engine Hydrocarbon Emissions - An Evaluation of Catalyst and Fuel Effects," Society of Automotive Engineers Technical Paper Series 1990, Paper No. 902074.

Summers, J. C. and R. G. Silver. "Catalytic Control Issues Associated with the Use of Reformulated Gasolines," *Society of Automotive Engineers Technical Paper Series* 1990, Paper No. 902072, October 1990. ;

Kaiser, E. W., W. O. Siegel, D. F. Cotton, and R. W. Anderson. "Effect of Fuel Structure on Emissions from a Spark-Ignited Engine. 2.Naphthene and Aromatic Fuel" *Environmental Science and Technology* 26, 1581-1586 (1992);

Kaiser, E.W. "Impact of Operating Conditions and Fuel Composition on Vehicle Emissions," American Chemical Society, Division of Fuel Chemistry, Preprints of Symposia, 42 (3), fuels, Emissions, and Toxicity Session, 214th ACS National Meeting, September 8-11,1997, Las Vegas, NV.

[4] "During high speed accelerations, hydrodealkylation of alkylbenzenes to form benzene occurs readily over automotive catalysts. Summers, J. C. and R. G. Silver, "Catalytic Control Issues Associated with the Use of Reformulated Gasolines," *Society of Automotive Engineers Technical Paper Series* 1990, Paper No. 902072, October 1990.

fact, most aromatics are deliberately synthesized by refiners to increase the value of the product by increasing the fuel octane.

Technical Analysis Plan

As part of its April 2001 mobile source air toxics rulemaking, EPA identified four critical areas of research on mobile source air toxics where there are data gaps, and committed to a technical analysis plan to address these gaps. These critical areas were:

- development of better emissions factors for air toxics from nonroad sources
- improved estimation of exposure in microenvironments
- improved consideration of the range of total public exposure to air toxics (characterizing mobile source "hot spots")
- improved understanding of effectiveness and costs of control strategies.

Emissions of Air Toxics from Nonroad Sources

With regard to nonroad engines, EPA stated in the MSAT I rule that "the largest single data gap (for nonroad engines) is in the area of emission factors…. We intend to use the technical analysis plan… to fill these data gaps." EPA further says in the MSAT I rule "the Agency intends to evaluate emissions and potential strategies relating to HAPs from nonroad engines and vehicles. This is consistent with the commitment…to address emissions from nonroad as well as on-highway vehicles." Since the publication of the MSAT I rule, EPA has completed a number of studies to assess nonroad gasoline HAP emissions. However, as is stated in the RIA, NONROAD and NMIM have not been adjusted to use the new data. Given that an assessment of nonroad HAP emissions has not been completed and analyzed, we urge EPA to complete the needed emissions testing and update NONROAD and NMIM to reflect the new data.

The Clean Air Act allows EPA to "review and from time to time revise air toxics standards for mobile sources." Therefore we urge EPA to commit to further additional study to complete the elements of the technical analysis plan that have not yet been completed and to establish a time frame for a future rulemaking to further reduce MSAT emissions from highway and nonroad sources.

Improved estimation of exposure in microenvironments & improved consideration of the range of total public exposures to air toxics

Since the publication of the MSAT 1 rule the EPA has conducted personal exposure and ambient air monitoring studies in homes, schools, near roadways, vehicles and inside homes with attached garages. EPA has also worked to improve existing models, such as the HAPEM. Despite this initial work, the proposed rule does not fully address the much higher exposures experienced by people living in homes with attached garages, or by people traveling in their cars. Furthermore, the higher exposures experienced by people living within 200 m of roadways have not been comprehensively addressed. These issues are discussed in the RIA, but the full burden

on the American people has not yet been quantified. For example, the HAPEM6, which incorporates near-roadway exposures, was only extended to three states, Georgia, Colorado and New York. In the preamble to the proposed rule, the EPA states that prior to final rulemaking, the HAPEM6 model will be extended to a national scale. Since an improved version of the exposure model has been developed, NESCAUM encourages EPA to implement the model nationwide.

Improved understanding of effectiveness of control strategies

We do not believe that EPA has completed the analysis which was outlined in the 2001 MSAT rule. The rule states that EPA will "analyze a variety of control options, and re-evaluate previously considered control options, for both on-highway and nonroad sources. This additional analysis of control options will include the feasibility of requiring retrofit of both highway and nonroad heavy-duty diesel engines with emissions controls for air toxics." The NESCAUM states believe that many cost-effective control measures have not been fully considered in the development of this proposal.

Technical Comments on the Risk Assessment

1. Problem with the use of the **CIIT Centers for Health Research** (CIIT) unit risk factor (URF) for formaldehyde.

NESCAUM does not support the EPA's use of the CIIT URF for formaldehyde. The EPA inappropriately uses a cancer potency factor for formaldehyde that may substantially underestimate cancer risks. EPA states that it is not relying on the dose-response value in the Integrated Risk Information System (IRIS) because the science is not current. By using the CIIT formaldehyde dose-response data to develop a revised cancer URF the EPA has not followed the procedures set forth in the Residual Risk Report to Congress for establishing peer reviewed consensus dose-response information. The Residual Risk Report to Congress was prepared as mandated by Section 112(f) of the Clean Air Act to provide Congress and the public with a road map of the methods to be used by EPA to assess the risk associated with emissions of HAPs which remained after the implementation of the NESHAP program. One of the essential considerations in risk assessment is the evaluation of the source of the data and whether it has been peer reviewed. As stated on page 56 of the Residual Risk Report to Congress under the heading, *Data Availability, Limitations, and Closing Data Gaps*, the preferred source of dose-response data for conducting risk assessments is EPA's IRIS:

> Regardless of the endpoint of interest (acute, chronic non-cancer, or cancer effects) consensus toxicity values are preferred for conducting risk assessments. For chronic non-cancer and cancer criteria, the preferred source of data is EPA's IRIS. This data base provides toxicity criteria that have undergone internal peer review, and, for recent assessments, external peer review, and have been approved Agency-wide. The toxicological basis for the criterion is provided, as well as other supporting data and information regarding the uncertainty in the

> assessment. Other chronic toxicity criteria that have undergone less rigorous internal Agency review are available in the Health Effects Assessment Summary Tables (HEAST), which may be consulted for residual risk assessments when data are unavailable in IRIS. For HAPs not having adequate toxicity information in IRIS, EPA will develop and follow a hierarchy of data sources, including various kinds of Agency health effects assessment documents, ATSDR toxicological profiles, and other sources.

EPA's process for developing IRIS assessments consists of: (1) an annual Federal Register announcement of EPA's IRIS agenda and call for scientific information from the public on the selected chemical substances; (2) a search of the current literature; (3) development of health assessments and draft IRIS summaries; (4) peer consultation; (5) Agency review; (6) external peer review; (7) management approval and preparation of final IRIS summaries and supporting documents; and, (8) entry of summaries and supporting documents into the IRIS database.

EPA did not follow the prescribed process of listing the revised formaldehyde cancer URF in the IRIS database for the proposed MSAT rulemaking. The CIIT dose-response data has not undergone a rigorous peer review, an essential step in assuring that data is appropriate for use in making regulatory decisions which impact public health. The Residual Risk Report to Congress recognizes that biological dose-response data should be used whenever the data is of sufficient quality to derive a public health benchmark. This recognition, however, is not evidence of an intent to abandon the process of obtaining agency-wide consensus on the validity of the data and then posting dose-response data on IRIS. In the Final Report of the Presidential/Congressional Commission on Risk Assessment and Risk Management, Chapter 6, The Role of Peer Review in Regulatory Decision Making, the authors conclude, "peer review should provide balanced, independent views. When used well, peer review can serve as a system of checks and balances for the technical aspects of the regulatory process." These guidelines established by a bipartisan stakeholders group ensure that fair and transparent scientific practices are being instituted.

EPA has long acknowledged the importance of transparency and public perception regarding the reliability of their scientific assessments and related regulatory decisions. In this case, the use of the CIIT formaldehyde data in this regulatory proposal clearly undermines the IRIS review process. EPA needs to adhere to the principles contained in the Residual Risk Report to Congress and invoke the proper procedures for including data in IRIS before relying on it for regulatory determinations which discount the potential cancer risk associated with formaldehyde exposure.

2. The change in the formaldehyde risk between the IRIS and CIIT values is significant (they differ by more than 3 orders of magnitude). Before deciding to use the CIIT value, EPA should have considered the new information presented in the epidemiologic studies on formaldehyde that were published in 2003.
3. The risk assessment does not acknowledge the importance of diesel particulate matter.

4. The risk assessment should not use national average exposures to represent the risk of exposure to MSAT (RIA p. 3-46)
5. The risk reduction estimated in Section 3.2 (from 2.3E-5 to 1.7E-5) is essentially insignificant. Both risks round to 2E-5.
6. The EPA has not adequately considered in this proposed regulation the episodic, high-end exposures to respiratory irritants emitted from mobile sources or the cumulative impact of exposure to multiple respiratory irritants such as acetaldehyde, acrolein, formaldehyde, and diesel particulate. This oversight has not been adequately acknowledged in the current proposal.
7. The Exposure Assessment should be updated to use HAPEM6. The primary elements of concern to the Northeast States regarding the use of HAPEM5 include the fact that these models:

    - use microenvironmental factors with little justification for their derivation;
    - average concentration spread uniformly throughout census tract
    - will not estimate the exposure for the upper 10% of the population;
    - do not adequately represent the variance in the population exposure(s);
    - are so complicated that it is impossible for interested parties to directly access and evaluate the model predictions more thoroughly.

As we stated previously, we encourage the EPA to extend the HAPEM6 model to a national scale in order to more comprehensively estimate the full burden of MSATs on the American people.