



# **Control of Emissions of Hazardous Air Pollutants from Mobile Sources:**

## **Response to Comments**



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**Control of Emissions of Hazardous  
Air Pollutants from Mobile Sources:  
Response to Comments**

Assessment and Standards Division  
Office of Transportation and Air Quality  
U.S. Environmental Protection Agency

Docket A2000-12

RESPONSE TO COMMENTS DOCUMENT  
CONTROL OF EMISSIONS OF HAZARDOUS AIR POLLUTANTS  
FROM MOBILE SOURCES

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TIER 2 MOTOR VEHICLE EMISSION STANDARDS AND  
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## **CONTROL OF EMISSIONS OF HAZARDOUS AIR POLLUTANTS FROM MOBILE SOURCES: RESPONSE TO COMMENTS**

### **INTRODUCTION**

Air toxics, which are also known as “hazardous air pollutants” or HAPs, are those pollutants known or suspected to cause cancer or other serious health or environmental effects. To address concerns about the potentially serious impacts of hazardous air pollutants on public health and the environment, the Clean Air Act (the Act) as amended in 1990, includes a number of provisions that have led EPA to characterize, prioritize, and control these emissions as appropriate. This rule on the control of hazardous air pollutants from mobile sources addresses air toxics emissions from mobile sources in several ways. First, we identify 21 Mobile Source Air Toxics (MSATs), including various VOCs as well as metal compounds and diesel particulate matter + diesel exhaust organic gases (collectively DPM + DEOG). Second, we examine the mobile source contribution to national inventories of these compounds and the impacts of existing and proposed mobile source control programs. Third, we set new gasoline toxic emission performance standards which require refiners to maintain current levels of overcompliance with RFG and anti-dumping toxic emission performance requirements. Finally, we establish a process to continue to conduct research and analysis on mobile source air toxics. This includes a Technical Analysis Plan which we will implement to continue to conduct research and analysis on mobile source air toxics. Based on the results of that research, EPA will conduct a future rulemaking, to be completed no later than July 1, 2004, in which we will revisit the feasibility and need for additional air toxics controls for nonroad and highway engines and vehicles and their fuels

EPA proposed this rule on August 4, 2000, at 65 FR 48058. The proposal announced the opportunity for written public comment until September 20, 2000. The proposal also provided notice of public hearing, which was held on August 21, 2000 in Romulus, Michigan.

Complete transcripts of the public hearings and the full text of each comment letter, along with supporting information used in developing the regulation, are listed in Docket No. A-2000-12. This docket is available for public inspection and copying between 8:00 a.m. and 5:30 p.m., Monday through Friday, excluding government holidays, at Room M-1500, Waterside Mall, 401 M Street, S.W., Washington, D.C.

This document summarizes the written and oral comments submitted at the public hearing as well as the comment letters received during the public comment period (Docket Category IV-D), and records EPA's responses to those comments. In most cases in this document, EPA has listed all of the commenters who made a specific comment. In other instances, the Agency may have identified one or a representative number of commenters. The reader should note that many of the most significant comments are also addressed in the preamble for the final rule. Where appropriate, we have included cross-references in this document to the corresponding discussion in the preamble.

EPA received comments from a wide variety of stakeholders, including gasoline refiners, marketers, distributors and retailers; automobile manufacturers and parts suppliers; industry research and trade groups; state and local agencies; environmental organizations; and private citizens. A copy of each comment letter received is included in the rulemaking

docket. A list of commenters and the EPA docket item number assigned to their correspondence is also included in the docket. All of the comments have been carefully considered and, where appropriate, changes have been made to the final regulation in response to these comments.

Comments within a particular Issue (or Subissue) are divided into specific comments (such as "Comment A" or Comment "A.1"), so that comments and responses on specific aspects of an Issue (Subissue) are grouped together. The lettering and numbering of these comments preserves the Agency's internal classification of points raised on a particular issue in the various comment letters. This approach allows for cross-referencing between responses to related comments. In certain places, comments have been consolidated in a logical manner for the Agency's response. Even in these consolidated comments, the comment identification in this document preserves the Agency's internal lettering and numbering identification system within an issue (for instance a comment may be identified as "Comments A, F, G, N, and S" if those individual comments have a single consolidated response.

## ISSUE 1: GENERAL POSITION STATEMENTS

### 1.1: Supports Rule

#### (A) Expressed limited support for the rule as proposed by EPA.

- (1) While providing some support, commenters recommended several significant changes, including tightening the benzene requirement (see Issue 2.2 for more detailed comments) or expanding the rule to cover all aromatic compounds (see Issue 6.14.2).

Letters:

Bluewater Network (IV-D-29) p. 1  
Commonwealth of MA DEP (IV-D-13) p. 2  
Oregon Environmental Council (IV-D-9) p. 1

- (2) Commenter provides discussion of personal health concerns raised by MSATs and other forms of pollution.

Letters:

Norman White (IV-G-1) p. 1

**Response to issues 1.1(A)(1) and (2):** Several commenters expressed general support for our proposed program. Many of them also urged us to finalize standards that would go beyond the anti-backsliding standards we proposed and set tighter gasoline benzene limits to reduce mobile source benzene emissions. After consideration of all comments, we are finalizing a two-step approach to air toxics control. The first step retains the proposed gasoline air toxics anti-backsliding approach but includes a much broader set of gaseous air toxics. By requiring refiners to maintain their 1998-2000 average gasoline toxics performance levels, the standards we are finalizing focus on the five toxics used in the Complex Model to demonstrate performance (benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and POM) instead of only benzene. Thus, the mass of air toxics placed under the anti-backsliding controls is substantially increased. This approach offers broad protection to public health because all five of these are toxics are known or probable human carcinogens. At the same time, we remain sensitive to the potentially serious effects exposure to air toxics may have on human health. Consequently, in the second step of this approach we will implement the Technical Analysis Plan described in Section VII of the preamble for this rule. Through this Plan we will continue to improve our understanding of the risk posed by air toxics to public health and welfare. We will also evaluate the need for and appropriateness of additional mobile source air toxics controls for on-highway vehicles and their fuels. Based on the information developed through this technical analysis plan, we will conduct a future rulemaking to be completed no later than July 1, 2004. During this rulemaking, EPA also intends to evaluate emissions and potential strategies relating to hazardous air pollutants from nonroad engines and vehicles and nonroad sources.

#### (B) Supports major aspects of the proposal.

- (1) See comments on specific topics in Issues 2-8.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 1  
Alliance of Automobile Manufacturers (IV-F-1) p. 59  
Association of International Automobile Manufacturers (IV-D-7) p. 1  
Engine Manufacturers Association (IV-D-39) p. 10  
Engine Manufacturers Association (IV-F-1) p. 10

**Response to issue 1.1(B)(1):** Commenters from the engine and vehicle manufacturing industry generally supported our conclusion that additional vehicle-based controls are not warranted at this time. Additional support for our conclusion that our Tier 2 light-duty vehicle program and our proposed heavy-duty engine and vehicle standards achieve the greatest degree of toxics control achievable at this time is provided in the preamble to this final rule and our Technical Support Document.

**1.2: Opposes Rule**

**(A) Rule is not sufficient to address concerns associated with MSATs.**

- (1) See commenters' detailed concerns under Issues 2.1-2.4.

Letters:

Clean Air Network, et al (IV-D-38) p. 1  
Consumer Policy Institute (IV-D-8) p. 1  
EarthJustice Legal Defense Fund (IV-D-32) p. 1  
IL EPA (IV-D-28) p. 2  
Puget Sound Clean Air Agency (IV-D-27) p. 1  
STAPPA, ALAPCO (IV-D-22) p. 1-2  
STAPPA, ALAPCO (IV-F-1) p. 44

**Response to issue 1.2(A)(1):** Section 202(l)(2) of the Clean Air Act calls on EPA to set standards for emissions of hazardous air pollutants from motor vehicles and their fuels that "reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time." Today's rule adopts an anti-backsliding program that is an appropriate near-term control under this provision. The anti-backsliding requirement can be implemented using existing technology, at negligible costs, with little lead time. More stringent near-term controls do not appear reasonable at this time. Requiring more than an anti-backsliding standard could require refinery upgrades that could not be completed without additional lead time. In the near term, refineries are already planning and investing in capital improvements and pursuing the permitting necessary to upgrade their facilities to meet our regulations limiting the sulfur content of fuels. While we lack the information to fully assess the benefits and costs of further controls in the 2002 time frame, we have serious concerns that further toxics control in this time frame could interfere with refiners' planning and affect their ability to meet our sulfur standards.



Although we conclude that additional near-term controls are not reasonable under section 202(l)(2), there may be additional reductions of MSAT emissions that can be achieved in the long-term. We are not ready, however to address these possible long-term controls in this rulemaking. There is a considerable amount of uncertainty about the effectiveness and costs of vehicle, fuel, and nonroad controls as well as about exposure and risk for sensitive subpopulations, the range of total public exposure to air toxics, and the inventory impacts of nonroad sources. We will collect information about these issues as part of the Technical Analysis Plan we will implement as described in Section VII of the preamble for this rule and will use this information in a future mobile source air toxics rulemaking to be completed no later than July 1, 2004.

While several commenters expressed concern that this two-step approach delays more stringent action, we believe it is appropriate because it allows us to design long-term controls that will optimally reduce exposure to mobile source air toxics while implementing controls immediately that ensure that the toxics emissions performance of gasoline does not deteriorate in response to potential changes in fuel production processes.

**(B) The rulemaking is without merit.**

- (1) The rule seeks to impose regulation on an already heavily burdened industry while achieving no public health or demonstrated air quality benefit. Some of these commenters added that EPA has failed to meet the basic regulatory development requirement: to analyze the cost effectiveness of its regulations.

Letters:

American Petroleum Institute (IV-D-21) p. 1

American Petroleum Institute (IV-F-1) p. 33

Chevron (IV-D-34) p. 1

ExxonMobil (IV-D-16) p. 1

Marathon Ashland Petroleum, LLC (IV-D-15) p. 4-5

Murphy Oil Corporation (IV-D-17) p. 4-5

National Petrochemical and Refiners Association (IV-D-33) p. 1-2

Phillips Petroleum Company (IV-D-20) p. 2, 6

Silver Eagle Refining, Inc. (IV-D-18) p. 1

**Response to issue 1.2(B)(1):** The Clean Air Act requires EPA to set controls for at least benzene and formaldehyde that “reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time.” The standards we are finalizing are designed to be a reasonable approach to ensure that there is no backsliding on the toxics performance of gasoline. They are clearly achievable in the near-term without imposing burdens on the refining industry because they require simply that refiners maintain their current toxics performance levels and so impose only negligible costs, if any. To fail to promulgate these standards would be to ignore the clear direction of the Act. With regard to long-term controls, we will assess their costs and benefits as part of the Technical Analysis Plan and our future rulemaking. Responses to specific concerns about our cost-benefit analysis can be found under Issue 6.13.1, below.

- (2) The benzene content of gasoline is already limited under reformulated gasoline and anti-dumping rules and it is not clear from the NPRM why this level of control is not sufficiently protective of public health. Moreover, EPA already expects the level of over-compliance to continue and even improve, which appears to make a rule unnecessary. (See related comments under Issue 6.13.2 about the lack of benefits.)

Letters:

U.S. Small Business Administration (IV-D-26) **p. 2**  
American Petroleum Institute (IV-D-21) **p. 2, app p. 3**

**Response to issue 1.2(B)(2):** Because the air toxics addressed by the gasoline toxics performance standard are known or probable human carcinogens, it is difficult to say what level of control is sufficient to protect public health. What is clear, however, is that it is desirable to avoid increases in exposure to these pollutants. The standards being finalized will help prevent this from happening. As explained in our preamble and Technical Support Document, the trend appears to be toward continued and perhaps further over-compliance with the toxics requirements of the federal reformulated gasoline and anti-dumping programs. However, instead of making this rule unnecessary, these trends support our conclusion that tighter standards may be achievable in the long term since some of the technologies used to achieve current levels of over-compliance may be applicable to broader segments of the refining industry. Consequently, we will explore additional fuel-based air toxics controls in our Technical Analysis Plan and will address such controls in our July 2004 rulemaking.

## ISSUE 2: ADEQUACY OF THE PROPOSAL

### 2.1: Statutory Obligations

**(A) EPA has already met its statutory obligations, and is not required to further regulate air toxics at this time.**

- (1) Any obligation under Section 202(l) to promulgate MSAT rules was met when EPA promulgated the 1994 RFG/anti-dumping rulemaking. This point is especially apparent given that there are no benefits assumed under this proposal. Thus, EPA is under no further statutory or judicial obligation to promulgate additional MSAT rules.

Letters:

American Petroleum Institute (IV-D-21) p. 3  
American Petroleum Institute (IV-F-1) p. 34, 37-38  
Chevron (IV-D-34) p. 1  
ExxonMobil (IV-D-16) p. 1  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 5-6  
Murphy Oil Corporation (IV-D-17) p. 5-6

**Response to issue 2.1(A)(1):** Our consent decree requires that we promulgate the regulations described in section 202(l)(2). The regulations described in this section must contain standards that represent the greatest degree of emissions reductions achievable considering the availability of the technology, cost, lead time and other factors. Our analysis demonstrates that the current RFG and anti-dumping toxics performance standards do not represent the greatest degree of emissions reductions achievable. We therefore disagree with commenter's assertion that nothing more is required.

We also think it unlikely that Congress expected RFG to satisfy our obligation to consider fuel-based controls in 202(l)(2). Commenter's suggestion would render 202(l)(2) duplicative and meaningless. In fact, 202(l)(2) provides a broader scope for addressing toxics for vehicles and fuels, a different criteria for determining the appropriate level of control and a different time frame for action. If Congress had expected 1994 RFG/anti-dumping program to satisfy its clearly-expressed concern about public exposure to air toxics, it would not have required the Agency to establish, at a minimum, standards applying to benzene and formaldehyde emissions in 1995 under section 202(l).

Finally, even if we could argue that, because of our RFG controls and anti-dumping, nothing further is required under 202(l)(2), there is nothing in that section that precludes further controls. Section 202(l)(2) clearly states that EPA shall "promulgate (and from time to time revise" regulations..." In other words, Congress intended EPA to consider control of emissions of hazardous air pollutants from motor vehicles and their fuels as an ongoing air pollution issue. The Agency must consider potential controls and determine whether those controls "reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time."

As to the benefits of this program, while it is true that we have not claimed that this anti-backsliding program will result in some quantifiable emissions reduction benefit, we disagree with the suggestion that there are no benefits from preventing backsliding. By ratcheting down the toxics performance standards, we have ensured that emissions performance will not deteriorate below today's levels. Without today's anti-backsliding program, the current standards would leave room for toxics emissions from gasoline-fueled motor vehicles to increase by 70,000 tons per year over 1996 inventory levels. In addition, as noted by Environmental Systems Products in their comments (IV-D-25, p. 12-13), the legislative history of the Act suggests that the benefits of the standards EPA would establish under Section 202(l)(2) would be in addition to benefits resulting from standards established under other provisions of the Act. With regard to the benefits of this mobile source air toxics rule, there are air quality and public health benefits associated with preserving the existing over-compliance with the federal reformulated gasoline and anti-dumping requirements.

- (2) EPA has already met the legal standard for controlling HAP emissions from mobile sources through the aggressive and technology-forcing Tier 2 and HDDE requirements which "reflect the greatest degree of emissions reduction achievable through the application of technology which [will be] available for the model year to which such standards apply."

Letters:

International Truck and Engine Corp. (IV-D-30) p. 2-3

**Response to issue 2.1(A)(2):** We agree that our Tier 2 light-duty vehicle program and our proposed heavy-duty engine and vehicle standards achieve the greatest degree of toxics control achievable at this time. However, as noted above, Congress instructed EPA to "from time to time" review these mobile source air toxics standards, and we will revisit the technological feasibility and need for additional vehicle and fuel controls in a future rulemaking, in 2003-2004.

**(B) EPA's proposed MSAT regulations fail to meet the statutory mandate under the CAA.**

- (1) Section 202(l) of the CAA requires EPA to address air toxics by setting motor vehicle and fuel standards which "reflect the greatest degree of emission reduction achievable through the application of technology which will be available...." EPA has identified the threats posed by MSATs while pushing forward only with regulation of criteria pollutants from mobile sources. EPA has failed to deal comprehensively with emissions of criteria and toxic pollutants in its rulemaking, and now suggests it may be infeasible to require further vehicle or fuel controls. EPA's narrow interpretation of its obligation under 202(l) falls far short of a comprehensive assessment of the air quality and public health impact of mobile sources burning gasoline and diesel fuels. One commenter added that EPA appears to establish as a precondition for adopting additional requirements under section 202(l) that section 202(a) controls are ineffective at controlling MSATs. That type of precondition is not required by the statute and is erroneous.

Letters:

Clean Air Network, et al (IV-D-38) p. 1-2  
Consumer Policy Institute (IV-D-8) p. 1-2  
EarthJustice Legal Defense Fund (IV-D-32) p. 3-6, 8-9  
IL EPA (IV-D-28) p. 2  
NESCAUM (IV-D-10) p. 7-8, 10  
STAPPA, ALAPCO (IV-D-22) p. 1-2  
STAPPA, ALAPCO (IV-F-1) p. 43-44

**Response to issue 2.1(B)(1):** Section 202(l)(2) instructs us to set standards to control hazardous air pollutants from motor vehicles, motor vehicle fuels, or both. These standards, which may be revised from time to time, are to reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration the motor vehicle standards established under Section 202(a) of the Act, the availability and cost of the technology, and noise, energy and safety factors, and lead time. The regulations are to apply, at a minimum, to benzene and formaldehyde emissions, and are to be set under Section 202(a) or 211(c) of the Act.

We disagree with the assertion that we are suggesting it is infeasible to require further vehicle or fuel controls, or that we are establishing as a precondition for adopting additional requirements that the Section 202(a) controls are ineffective at controlling MSATs. As described in our preamble and in the Technical Support document for this rulemaking, we believe that the standards being finalized represent the greatest degree of emission reductions achievable in the short term. There may be vehicle- and fuel-based opportunities in the future to achieve additional MSAT emission reductions. However, because there is a considerable amount of uncertainty about the effectiveness and costs of vehicle, fuel, and nonroad controls as well as about exposure and risk for sensitive subpopulations, the range of total public exposure to air toxics, and the inventory impacts of nonroad sources, we do not believe it is reasonable to establish long-term standards at this time. We will collect information about these issues as part of the Technical Analysis Plan we will implement as described in Section VII of the preamble for this rule and will use this information in a future mobile source air toxics rulemaking to be completed no later than July 1, 2004.

- (2) The serious public health threats associated with MSATs in urban areas and the clear statutory mandate of the CAA warrant immediate action by EPA. The Agency relies on mass emission reductions of toxics projected from previous regulations. For health risks many times over health based thresholds, mass emissions reductions are an insufficient measure of the effectiveness of control programs. The absence of any demonstration of the health risks for each U.S. urban area, and the long time period (until 2020) to realize the expected mass emissions reductions from existing control programs demonstrate the inadequacies of the proposal to protect public health. EPA cannot justify waiting another three years to take action on MSATs.

Letters:

Consumer Policy Institute (IV-D-8) p. 1-2

**Response to issue 2.1(B)(2):** As noted in the response to Issue 2.1.B(1) above, any action that we take to reduce emissions of hazardous air pollutants from motor vehicles and their fuels in response to the public health threats associated with MSAT emissions in urban areas must meet the criteria of Section 202(l) of the Act. These criteria are clear: The standards set by EPA must reflect “reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time.” To fulfill our statutory obligation, we analyzed vehicle- and fuel-based control options to determine if further reduction were achievable. Based on this review, we concluded that a new anti-backsliding fuel measure satisfied these criteria in the near-term and that we could not reasonably establish long-term fuel controls without additional information. Our analysis of vehicle-based controls led us to conclude that our promulgated and proposed vehicle controls satisfy the criteria in 202(l)(2). These conclusions were not based on a determination that these controls will achieve a sufficient level of emissions reductions, but instead were based on an evaluation of the achievability of further reductions considering the availability of technology, cost, lead time and the other criteria in 202(l)(2).

At the same time, we are sensitive to the potentially serious effects exposure to air toxics may have on human health. Consequently, we will implement the Technical Analysis Plan described in Section VII of the preamble for this rule. Through this Plan we will continue to improve our understanding of the risk posed by air toxics to public health and welfare. We will also evaluate the need for and appropriateness of additional mobile source air toxics controls for on-highway and nonroad sources, and their fuels. Based on the information developed through this technical analysis plan, we will conduct a future rulemaking to be completed no later than July 1, 2004.

- (3) The CAA requires that the regulations at a minimum apply to emissions of benzene and formaldehyde. Yet in contrast to this clear direction from Congress, EPA chose to consider only a benzene fuel control program in this proposed rule. One commenter notes that EPA included no analysis of formaldehyde fuel-based controls, and has had ample opportunity to do so.

Letters:

EarthJustice Legal Defense Fund (IV-D-32) p. 7-8  
IL EPA (IV-D-28) p. 2  
NESCAUM (IV-D-10) p. 2-3

**Response to issue 2.1(B)(3):** Several commenters urged us to consider establishing controls for additional MSATs instead of focusing only on benzene. The standards we are finalizing take these comments into account by setting toxics emissions performance standards for gasoline instead of just a benzene standard. By requiring refiners to maintain their 1998-2000 average gasoline toxics performance levels, the standards we are finalizing focus on the five toxics used in the Complex Model to demonstrate performance (benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and POM) instead of only benzene. Thus, the mass of air toxics placed under anti-backsliding is substantially increased. It also offers broader protection to public health because all five of these are toxics are known or probable human carcinogens.

- (4) Reliance on measures already taken and the capping of benzene levels at 1998-99 levels do not adequately address areas such as the Puget Sound region that have fuel benzene concentrations above the national average and have not enjoyed the benefits of reformulated gasoline.

Letters:

Puget Sound Clean Air Agency (IV-D-27) p. 1

**Response to issue 2.1(B)(4):** We recognize that one of the potential drawbacks of setting an anti-backsliding standard is that areas that currently have high benzene concentrations may not see a reduction in their levels. However, we believe the final standards adopted in this rule do not alter current state authority to establish more stringent state standards for fuel benzene. More specifically, because we are promulgating toxics performance requirements that are identical in form to the toxic performance standards already in place, today's rule does not change the ability of States to regulate other gasoline characteristics or components. As discussed in the NPRM, we believe a toxics performance requirement may not cause States to be prohibited by section 211(c)(4) of the Act from setting their own fuel benzene standard. Note, however, that any such State fuel benzene standard could only be set for conventional gasoline because the reformulated gasoline regulations impose a federal benzene standard on RFG, thus preempting States from setting a more stringent RFG benzene standard.

- (5) The text and statutory history of section 202(l) clearly contemplate that the rules will provide air quality benefits over and above those obtained from implementing other sections of the Act. A benzene cap that locks in current practice cannot meet that statutory mandate.

Letters:

Environmental Systems Products (IV-D-25) p. 12-13

**Response to issue 2.1(B)(5):** The statute requires that we adopt controls that represent the greatest degree of emissions reductions achievable. We have concluded that our vehicle-based controls fulfill this statutory requirement, and that further control are not appropriate at this time. For fuel-based controls, we determined that the current RFG and anti-dumping toxics performance standards do not reflect the greatest degree of emission reduction achievable. Therefore we are adopting new anti-backsliding requirement. These standards will ensure continued reductions of toxics emissions beyond those currently required. At the same time, we have concluded that additional controls are not appropriate in the near term. As described in the preamble and Technical Support Document for this rule, the gasoline toxics performance standard being finalized provides benefits over and above those obtained from implementing other sections of the Act because it captures current levels of over-compliance with those other programs and will prevent refiners from increasing their toxics emissions up to the limits contained in the federal reformulated gasoline and anti-dumping programs.

- (6) EPA is required to evaluate at least a 0.6% or 1% benzene cap as "achievable" under 202(l). EPA also needs to consider control measures for

non-benzene HAPs and not just order a "toxics emission performance standard." Individual caps for these pollutants must be considered. Likewise, EPA fails to explain how the proposal addresses metals. If they are primarily from lube oils, EPA fails to address the possibility of lube oil standards. Similarly, EPA suggests a relationship between diesel fuel and aldehydes with dioxin/furans, but fails to analyze whether the standards it proposes represent the greatest degree of emission reduction for these HAPs. EPA's failure to consider vehicle standards also documents EPA's failure to analyze whether the standards utilize the greatest degree of reductions possible. (See related comments under Issue 5.)

Letters:

EarthJustice Legal Defense Fund (IV-D-32) p. 4-5

**Response to issue 2.1(B)(6):** With regard to evaluating a 0.6% or 1% benzene cap, Section 202(l)(2) does not require us to evaluate all possible control measures. Instead, we are required to establish additional control measures that "reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time." As we explain in the preamble and Technical Support document for this rule, the standards that are being finalized take immediate steps to address toxics emissions from fuels in the near-term. This is a reasonable control on toxics emissions from fuels because the technology to maintain the current toxics performance of gasoline produced at each refinery is already available and continued compliance will not be costly even with implementation of our recently adopted sulfur controls. We do not believe it is reasonable to establish more stringent controls in this near-term time frame. First, the lead time is too short to allow for investments and upgrading of refinery equipment in any significant manner. Second, we have recently adopted, or proposed to adopt, two regulations that will achieve very significant emissions reductions by setting tight limits on the sulfur content of fuels used in on-highway vehicles. To comply with these new regulations, industry is already planning and investing in capital improvements and pursuing the necessary permitting to upgrade their refineries.

We have serious concerns that further toxics controls in the 2002 time frame could interfere with refiners' planning and affect their ability to meet our recently promulgated, or proposed, sulfur standards. Nevertheless, we believe it is desirable to act over a reasonably short time frame to guarantee toxics controls in the near-term. We plan to address the sufficiency of these controls and the appropriateness of further controls in a future rulemaking. We lack a sufficient basis that would support further steps as part of this rulemaking and allow us to conduct the evaluation of cost and energy considerations required by §202(l). We need to collect the information outlined in our Technical Analysis Plan (see Section V), so that we can assess the costs and benefits of potential fuel controls. This information will allow us to more accurately consider the impact of our recently promulgated, or proposed, fuel sulfur controls and assess how toxics controls can be incorporated. As part of the Technical Analysis Plan we will also collect information, which is currently lacking, on the availability and feasibility of further controls and the risk posed to public health and welfare by air toxic hot spots. Based on our conclusion that the anti-backsliding controls are reasonable controls for the short-term, the fact that we lack



information suggesting further controls are appropriate in the short-term, and the fact that we are not ready to address long-term controls in this rulemaking, we conclude that today's anti-backsliding requirement satisfies the criteria of section 202(l)(2).

Commenters are correct that this rule does not establish standards for metals. Metals in mobile source exhaust can come from fuel, fuel additives, engine oil additives, or engine wear. We do not have good data about the precise sources of metals, and thus we cannot yet target controls to reduce these emissions. Also, to the extent that metals are present due to impurities in engine oil or from engine wear, EPA does not have clear statutory authority to limit the metal content in oil.

With regard to dioxin/furans, we searched available literature on the relationship between diesel fuel and this set of air toxics. Unfortunately, there is only limited data in the literature. Also, no standard test method is used in existing studies, and the methods that are employed have poor accuracy. When future research clarifies this relationship, we will be able to target emission controls and evaluate their effectiveness at reducing these emissions and their costs.

Finally, this rulemaking does consider additional vehicle standards. Section IV of the preamble and Chapter 6 of the Technical Support Document explain our conclusion that additional vehicle-based controls are not warranted at this time. See also the answers to Issue 6, below.

**(C) Given the statutory requirements related to the section 202(l)(1) studies, EPA's proposed standards are arbitrary and capricious.**

- (1) First, the proposal does nothing to address the significant risks found in the studies. Thus, EPA cannot meet the statutory requirement that the rule be "based on" the studies. Even if one assumes EPA could meet that requirement, the commenter argues further that the studies themselves are inadequate, which makes the rulemaking based on the studies arbitrary and capricious. The commenter identifies a number of problems with the studies and argues that EPA has not undertaken evaluations of health and environmental impact as it has done in supporting other CAA regulations.

Letters:

EarthJustice Legal Defense Fund (IV-D-32) p. 1-2

**Response to issue 2.1(C)(1):** EPA's 1993 study, *Motor Vehicle-Related Air Toxics Study* (Report No. EPA 420-R-93-005, which can be accessed at <http://www.epa.gov/otaq/toxics.htm>), was prepared pursuant to Section 202(l)(1) of the Act. This study provided estimates of motor vehicle emissions of several pollutants believed to pose the greatest risk to public health, including benzene, formaldehyde, and 1,3-butadiene, as required by the Act, as well as acetaldehyde, diesel particulate matter, gasoline particulate matter, and gasoline vapors. Exposure and risk were evaluated for four different years: 1990, 1995, 2000, and 2010. It should be noted that this study did not address whether to promulgate air toxics standards or suggest what those standards should be. That discussion

was deferred to a future rulemaking under Section 202(l)(2). Instead, the study summarized that was known about motor vehicle-related air toxics.

As described in the Technical Support Document for this rulemaking, we sought peer review of this study in 1994. The comments from the peer review included suggestions for improving EPA's exposure modeling and risk assessment methodology. In response to these comments, EPA updated its exposure model for motor vehicle-related air toxics. Also, since 1993, significant new information on vehicle emission rates has been developed as part of the Auto/Oil program, the development of the Complex Model for reformulated gasoline, CARB test programs, and other sources, and much more is known about the impact of fuel properties on toxic emissions. Furthermore, EPA has developed new programs, such as the NLEV and Tier 2 standards, which have significant effects on projections of toxic emissions and exposure. Finally, EPA has released an updated cancer risk assessment for benzene, a draft reassessment for 1,3-butadiene, and a draft assessment for diesel exhaust emissions. In light of this new information, and in response to peer review comments, EPA has updated the estimates of emissions and exposure contained in the 1993 study. The revised study, *Analysis of the Impacts of Control Programs on Motor Vehicles Toxics Emissions and Exposure in Urban Areas and Nationwide* (Health Assessment Document for Diesel (EPA 420-R-99-023/030), revises only inventory and exposure estimates based on the new data; an updated risk analysis will be part of a separate updated study that will be completed in connection with our Technical Analysis Plan. We expect the revised risk estimates to be significantly different from the 1993 study results because they will take into account the various emission control programs that have been established since 1990.

Section 202(l)(2) instructs EPA, based on the study required under Section 202(l)(1), to set standards for emissions of hazardous air pollutants from motor vehicles and their fuels. However, Section 202(l)(2) also clearly sets out the criteria that those standards must meet: they are to "reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration [existing standards] and the costs of the technology, and noise, energy, and safety factors, and lead time." As discussed in the preamble and Technical Support Document for this rule and elsewhere in this Response to Comments document, we believe the standards being finalized meet these criteria. At the same time, we considered the findings of the studies within the context of our statutory requirements. The results of the Section 202(l)(1) studies will also be considered in and will help inform our Technical Analysis Plan, particularly as we evaluate the availability and costs of the technology, noise, energy, and safety factors, and lead time of different strategies that can be applied to reduce mobile source air toxics over and above the reductions expected by our existing and recently proposed mobile source emission control programs.

- (D) The section 202(l) studies that EPA uses as the basis for its proposal fail to meet the statutory requirements. (See related comments under Issue 2.2(D).)**
- (1) The studies fail to follow established EPA risk assessment protocol. EPA should have estimated the total risk presented by the air toxics associated with motor vehicles (based on ambient levels) and then determined, using an adequate margin of safety, what additional controls on motor vehicles and fuels are necessary to address those pollutants. The Motor Vehicle Related

Air Toxics Study (April 1993) and the Estimation of Motor Vehicle Toxic Emissions and Exposure in Selected Urban Areas (1999) were based on a source-specific assessment, rather than on assessment of ambient levels of hazardous pollutants, as is normally the case with such EPA risk assessment documents as required under CAA section 202(l). EPA has failed to offer a reasoned explanation for this departure from this holistic and scientifically sound approach as required of it by administrative law principles which provide that an agency may not shift its position without supplying a reasoned explanation for the shift.

Letters:

Environmental Systems Products (IV-D-25) p. 8-9

**Response to issue 2.1(D)(1):** Our study followed the requirements in 202(l)(1), is consistent with our agency guidance, and has received extensive peer review. We would also like to point out that, unlike other provisions that the commenter may be thinking of, 202(l)(2) does not direct EPA to set health-based standards that provide an "adequate margin of safety." Instead, 202(l)(2) is a technology-based standard that directs EPA to set the standard according to what is technologically achievable considering the criteria in 202(l)(2).

The Agency's 1996 proposed risk characterization guidelines (<http://www.epa.gov/ORD/WebPubs/carcinogen/>) call for risk characterization to be done based on an exposure assessment. Thus it would be inconsistent with the Agency's own guidelines to estimate risks based on ambient concentrations. It may be that commenter has confused a NAAQS-type analysis with the type of analysis we usually perform for HAP sources. In any event, the suggestion that there has been a "shift" is mistaken.

The Agency agrees that to the extent possible, we should look at risks in the aggregate. The National Air Toxics Assessment currently being conducted will look at aggregate inhalation risks from outdoor sources of air toxics. We will evaluate information on aggregate risks as part of our 2004 rulemaking.

- (2) EPA's regulatory studies are inadequate because they are inconsistent with the broad mandate of Congress to study the need for controlling MSATs which required a study of "controlling emissions of toxic air pollutants ... associated with motor vehicles and motor vehicle fuels." The focus of this language is on the pollutants associated with motor vehicles, and not on the type of vehicle. The entire inventory of these pollutants, including those from non-road vehicles, should have been taken into account. In contrast, EPA adopted a source-specific approach, examining the cancer risk associated with the toxic emissions contribution of on-road motor vehicles, rather than undertaking a comprehensive assessment of the risks of the air toxics associated with motor vehicles, including non-road sources.

Letters:

Environmental Systems Products (IV-D-25) p. 6-7

**Response to issue 2.1(D)(2):** Section 202(l) directs the Agency to address emissions from motor vehicles and motor vehicle fuels. The term motor vehicle is used in the Clean Air Act to mean on-road motor vehicles, and thus the rule is focused on on-road vehicles, both light and heavy duty. The Agency included a chapter to discuss the importance to nonroad sources of emissions. See response describing legal authority under section 202(l), response to issue 2.1(B)(1).

## **2.2: Adequacy of Rule to Address Public Health & Welfare Concerns**

### **(A) Because mobile sources are the leading emissions source of HAPs in the country, EPA must adopt more comprehensive rules than EPA has proposed.**

- (1) One commenter stated that EPA's listing of the top twenty sources of toxic air emissions in the 1993 OAQPS Air Pollutant Emission Trends Report identified on-road vehicles as the largest source, and non-road vehicles as the fifth largest source of HAPs. Commenters also noted that the 1998 Cumulative Exposure Project (CEP) identified mobile sources as responsible for the majority of HAP emissions, and that NESCAUM determined that mobile sources dominate the primary emissions (40-92% of the entire inventory for these pollutants) in all Northeastern States. Other commenters noted that the 1996 National Toxics Inventory shows that motor vehicles and non-road sources are responsible for 40% of all HAPs. Some of these commenters further noted that mobile sources represented 76% and 49% of all emissions of benzene and formaldehyde, respectively. Finally, some commenters stated that NATA modeling showed that even small communities significantly exceed the health benchmarks for ambient benzene concentrations.

Letters:

Clean Air Network, et al (IV-D-38) **p. 1**  
Commonwealth of MA DEP (IV-D-13) **p. 1**  
Consumer Policy Institute (IV-D-8) **p. 4**  
Environmental Systems Products (IV-D-25) **p. 2-3**  
IL EPA (IV-D-28) **p. 1**  
NESCAUM (IV-D-10) **p. 1-2**  
NESCAUM (IV-F-1) **p. 22-23**  
STAPPA, ALAPCO (IV-D-22) **p. 1-2**  
STAPPA, ALAPCO (IV-F-1) **p. 43**

- (2) Not surprisingly given the automobile's prevalence, motor vehicle emissions account for up to half of all cancers attributed to outdoor sources of air toxics.

Letters:

Environmental Systems Products (IV-D-25) **p. 3**

**Response to issues 2.2(A)(1) and (2):** The Agency agrees that mobile sources are major contributors to exposure and risk from outdoor sources of air toxics. Programs currently in

place will reduce inhalation exposure to gaseous air toxics from highway mobile sources by about 50% in 2007 and 60% in 2020, relative to 1996 levels. EPA's 2007 standards will reduce exposure to diesel particulate matter by over 90% by 2020. Substantial reductions in air toxic emissions from nonroad equipment are projected as well (as described in the preamble and Chapter 8 of the Technical Support Document). Furthermore, this rulemaking has taken steps to ensure that reductions which have resulted from reformulation of gasoline are maintained.

The Agency acknowledges, however, that many data gaps exist which prevent it from fully characterizing risks. These data gaps, which include a lack of nonroad emissions data and an inability to adequately assess the potentially disproportionate impacts of air toxics in "hotspot" areas, are more fully described in the technical analysis plan in the preamble. As we address these data gaps we will evaluate what additional controls may be needed to adequately protect public health.

Finally, we would like to point out that there are no risk levels, or "benchmarks," which represent regulatory thresholds. However, the 1989 Benzene National Emission Standard for Hazardous Air Pollutants (NESHAP)<sup>1</sup> sets an upper limit of acceptability of 1 in 10,000 lifetime cancer risk for the most exposed individual, with other health and risk factors considered below this level to complete an overall judgement on acceptability.

**(B) Because ambient concentrations of cancer-causing compounds exceed health protective thresholds in every area of the country, EPA must adopt more comprehensive rules than EPA has proposed.**

- (1) The 1998 CEP predicted that seven cancer-causing compounds exceeded health-protective thresholds in every census tract in the country in 1990. In the Northeast ambient concentrations of acetaldehyde, benzene, 1,3-butadiene and formaldehyde exceed risk-screening thresholds for cancer and, in some cases, non-cancer effects throughout the region.

Letters:

Consumer Policy Institute (IV-D-8) p. 4  
Environmental Systems Products (IV-D-25) p. 2  
NESCAUM (IV-D-10) p. 2  
NESCAUM (IV-F-1) p. 22-23

- (2) In addition to causing cancer, human exposure to these air toxics at sufficient concentrations and durations can result in poisoning, the rapid onset of sickness such as nausea, as well as immunological, neurological, reproductive, developmental and respiratory problems. Hazardous air pollutants deposited onto soil or into lakes and streams adversely affect ecological systems and eventually harm human health through consumption of contaminated food.

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<sup>1</sup>Federal Register 54 (177): 38044 - 38072, September 14, 1989.

Letters:

Environmental Systems Products (IV-D-25) p. 2-3

**Response to issues 2.2(B)(1) and (2):** We agree that at certain exposure concentrations some HAPs may cause a variety of cancer and non-cancer health effects. We also agree with the commenter that, to the extent possible, future risk analyses should consider more than just the cancer risk associated with inhalation exposure. Chapter 3 of our TSD describes the potential health effects associated with each MSAT and the various exposure routes of concern.

Average nationwide exposures to benzene and formaldehyde exceed concentrations which would result in a one in a million upper bound lifetime risk, and in many areas of the country, exposure concentrations exceed one in a hundred thousand upper bound lifetime risk levels. A one in a million lifetime cancer risk level represents an annual risk of about 1.4 in 100 million, or about 3.5 cancer incidences in the entire U.S. population.

The EPA unit risk estimate for 1,3-butadiene is expected to be revised downward substantially as a result of a reassessment which is nearing completion. As a result, it is unlikely that average nationwide exposures will still exceed a one in a million upper bound lifetime risk.

Draft concentration results from the National Air Toxics Assessment (NATA) suggest that exposures to acrolein in many areas of the country may exceed the reference concentration, or RfC. In a few areas of the country, exposures to formaldehyde and acetaldehyde may also exceed the RfC. The RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from various types of human or animal data, with uncertainty factors generally applied to reflect limitations of the data used. Exposures above the RfC are not necessarily harmful, but indicate a potential for adverse health effects.

Although there are no risk levels which represent regulatory thresholds, the 1989 Benzene National Emission Standard for Hazardous Air Pollutants (NESHAP)<sup>2</sup> sets an upper limit of acceptability of 1 in 10,000 lifetime cancer risk for the most exposed individual, with other health and risk factors considered below this level to complete an overall judgement on acceptability. Available exposure assessment tools estimate population exposures rather than the exposures experienced by the most exposed individuals. They lack the level of refinement which would enable us to adequately assess the highest exposures found in mobile source "hotspots." The Technical Analysis Plan described in the preamble of the rule discusses our plan for better characterizing "hotspot" exposures.

**(C) While potentially supporting an anti-backsliding provision, the proposal is inadequate as the sole regulation on air toxics to be proposed at this time.**

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<sup>2</sup>Federal Register 54 (177): 38044 - 38072, September 14, 1989.

- (1) Commenters argue that EPA cannot just rely on other criteria pollutant rules, especially because the turnover is too long. One of the commenters noted that even under the best of circumstances, the proposed program will not afford additional controls on any emissions of mobile source air toxics for at least six or seven years, an unacceptably long time. Another commenter argued that EPA cannot rely on vehicle fleet turnover to achieve emission reductions of MSATs because fleet turnover is gradual and because the new technology needed to meet the new standards is unproven and prone to malfunction. This commenter also pointed out that the NAAQS control measures relied upon by EPA for a continuing reduction in mobile source toxic emissions are not all nationwide programs (while air toxics are a nationwide problem). Also, these programs are not all permanent and EPA has failed to address the potential for future relaxation of standards designed for attainment purposes that may not be needed in the future. Commenter urges EPA to adopt a strong nationwide I/M program as the most cost-effective means of reducing air pollutant emissions.

Letters:

Clean Air Network, et al (IV-D-38) p. 1-3  
Environmental Systems Products (IV-D-25) p. 13-16  
Environmental Systems Products (IV-F-1) p. 53-57  
Puget Sound Clean Air Agency (IV-D-27) p. 1  
STAPPA, ALAPCO (IV-D-22) p. 2  
STAPPA, ALAPCO (IV-F-1) p. 44-45

**Response to issue 2.2(C)(1):** EPA acknowledges that standards placed upon new motor vehicles do not result in immediate emission reductions because of the practical and statutory need to provide industry with reasonable lead time to implement the controls and the unavoidable fact that motor vehicle fleet turnover is gradual. Unfortunately, this is an inherent limitation of all standards for new vehicles, whether they are designed to address criteria pollutants or air toxics.

EPA's current and proposed vehicle standards will address gaseous and particulate toxics just as well as non-toxic VOCs and PM. More stringent controls, either in terms of shorter lead time or tighter standards, are not achievable.

For fuel controls, lead time is also an issue. Our anti-backsliding program can be implemented with almost no lead time. As described in Section IV of the preamble and Chapter 6 of the Technical Support Document for this rule, we have determined that additional near term controls are not reasonable. We will continue to analyze long-term controls to determine what controls are appropriate.

The Agency agrees with the comment that not all NAAQS-based programs are national in scope (e.g., RFG) nor are all criteria pollutant measures permanent (e.g., some local controls). The rule is designed to avoid future increases in air toxics across the nation. See response to issue 5(C) for a discussion of I/M programs.

- (2) The proposed benzene emissions standards are not sufficient to protect public health, and should be set at a lower level. Instead of merely codifying existing benzene levels, EPA should establish a nationwide fuel benzene cap that is more stringent than the 1.0 percent cap under the Phase I RFG program. Commenters added that the cap also should be no higher than the lowest benzene level currently being achieved in the U.S. today. This cap should be as low as feasible and should apply nationally. Another commenter argued that, given the known health and environmental impacts of benzene, EPA should ratchet down emissions below levels currently achieved by refiners. Another commenter stated that, at the very least, EPA should extend the RFG program's benzene cap to all gasoline. This commenter added that by locking in benzene at baseline levels, EPA is establishing regional standards, rather than a protective nationwide standard, which will force those living in areas with a higher than average benzene content to continue to bear this health burden. EPA needs to take more aggressive action in terms of standards and timing to address public health concerns.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 2  
Consumer Policy Institute (IV-D-8) p. 4  
NESCAUM (IV-D-10) p. 6  
NESCAUM (IV-F-1) p. 23-24  
Oregon Environmental Council (IV-D-9) p. 1  
STAPPA, ALAPCO (IV-D-22) p. 3

**Response to issue 2.2(C)(2):** Unlike other provisions of the Act, section 202(l)(2) does not direct EPA to set standards to eliminate or achieve a certain level of risk. Section 202(l)(2) directs to address pollutants that pose a health concern and impose standards that are the most stringent feasible within the "technology-based" criteria described in the provision. As discussed previously, programs currently in place will result in substantial reductions in benzene and other hazardous air pollutants. In 2004, we will determine whether additional fuel controls, or emission standards for highway vehicles and nonroad engines, are appropriate under the Act. EPA regulations are not designed to eliminate risk, nor to achieve a certain level of risk. They are intended to address pollutants that pose a health concern and impose standards that are the most stringent feasible within criteria described in the relevant statutory provision. As discussed previously, programs currently in place will result in substantial reductions in benzene and other hazardous air pollutants. In 2004, we will determine whether additional fuel controls, or emission standards for highway vehicles and nonroad engines, are needed to protect public health.

- (3) EPA should impose a nationwide limit that reflects the in-use benzene levels in RFG areas and apply the RFG area benzene limits to non-RFG areas. This could reduce by half the present benzene levels in non-RFG areas and maintain existing benefits in RFG areas. A single nationwide limit would also be enforceable throughout the gasoline distribution system with minimum recordkeeping and other administrative requirements. Another commenter stated that EPA should acknowledge that the current proposed rule is but the first step on benzene and should include a provision to revisit the issue by the



end of 2001 and explore the need for a nationwide benzene cap. Otherwise, non-RFG areas will continue to experience elevated benzene levels. One commenter in hearing testimony generally argued for nationwide standards to address non-RFG areas.

Letters:

California Air Resources Board (IV-D-1) p. 2  
Clean Air Network, et al (IV-D-38) p. 3-4  
Michigan Environmental Council (IV-F-1) p. 67-71

**Response to issue 2.2(C)(3):** Section 202(l)(2) requires EPA to adopt regulations that contain standards which reflect the greatest degree of emissions reductions achievable through the application of technology that will be available, taking into consideration existing motor vehicle standards, the availability and costs of the technology, and noise, energy and safety factors. Today's rule adopts an anti-backsliding requirement that EPA believes is appropriate under section 202(l)(2) as a near-term control. We are not adopting long-term controls such as uniform national gasoline air toxics limits because we lack the information necessary to assess appropriate long-term controls.

Today's rule addresses toxics emissions from fuels in the near-term. The rule will cap the toxics performance levels of gasoline beginning in 2002. Adopting an anti-backsliding program is a reasonable control on toxics emissions from fuels. The technology to maintain the current toxics performance of gasoline produced at each refinery is already available and continued compliance will not be costly even with implementation of our recently adopted sulfur controls (see discussion in section V, and in chapter 7 of the technical support document).

We do not believe, however, that we could reasonably adopt further controls in this near-term time frame. First, the lead time is too short to allow for investments and upgrading of refinery equipment in any significant manner. For example, not all refiners produce benzene at the national average level and also because they do not currently use the same production techniques and so therefore cannot use the same or similar strategies to achieve the national average level of benzene fuel content. Second, we have recently adopted, or proposed to adopt, two regulations that will achieve very significant emissions reductions by setting tight limits on the sulfur content of fuels used in on-highway vehicles. To comply with these new regulations, industry is already planning and investing in capital improvements and pursuing the necessary permitting to upgrade their refineries. While we lack the information to fully assess the costs and benefits of further controls in the 2002 time frame, we have serious concerns that further toxics controls in the 2002 time frame could interfere with refiners' planning and affect their ability to meet our recently promulgated, or proposed, sulfur standards.

Even though today's rule focuses on near-term options for controlling toxic emissions from fuels, we plan to address the appropriateness of long-term controls in our future rulemaking. We are not ready, however, to address these long-term controls in this rulemaking. We need to collect the information outlined in our Technical Analysis Plan (see Section V), so that we can assess the costs and benefits of potential fuel controls. This information will allow us to more accurately consider the impact of our recently promulgated,

or proposed, fuel sulfur controls and assess how toxics controls can be incorporated. As part of the Technical Analysis Plan we will also collect information, which is currently lacking, on the availability and feasibility of further controls and the risk posed to public health and welfare by air toxic hot spots.

- (4) Even if the controls EPA is relying upon to address mobile source air toxics do result in a seventy-five percent reduction in certain pollutants, as EPA claims, that may still not be enough. One of these commenters added that the measure of successful regulation of hazardous air pollutants, according to EPA practice in other rules and as interpreted by the court in the 1994 decision related to the benzene NESHAP, is the reduction in the risk to public health to as close to one in one million as possible. In hearing testimony, one commenter also stated that the 1 in 100,000 or 1 in 1,000,000 thresholds were appropriate indicators of unacceptable risk.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 1  
NESCAUM (IV-F-1) p. 31  
STAPPA, ALAPCO (IV-D-22) p. 2  
STAPPA, ALAPCO (IV-F-1) p. 45-46

**Response to issue 2.2(C)(4):** The Agency agrees with the commenter that the expected significant reductions in mobile source air toxic emissions from 1990/ 96 to 2020 may not be sufficient to fully protect public health and welfare. One of the missing pieces of information is hot spot exposures which the Agency has committed to explore in the future. The risk targets for other program that are identified by commenters, while desirable goals in general, are not necessarily relevant here where the statute requires a technology-based approach even for emissions of toxics. EPA must evaluate the appropriateness of its controls according to the criteria in section 202(l)(2).

- (D) EPA's methodologies to evaluate health risk are not protective and distort the risk in most urban areas.
  - (1) One of the commenters argued that the CAA requires EPA to establish standards with an adequate margin of safety for special populations such as children and those with compromised health. In addition, commenters stated that the study methodology contained a number of problems; commenters raised some or all of the following: EPA failed to evaluate health risks in urban areas; EPA failed to evaluate cumulative exposure to respiratory irritants; EPA has not considered "hotspots" of exposure; middle income Caucasians do not represent those most exposed; in the absence of data about particular microenvironments, EPA should assume ambient prevalent concentrations for 24 hour/7 day a week exposure; EPA has not established that carbon monoxide exposure is a good indicator for estimating toxics exposures; EPA should be very concerned about the 30% underestimate of ambient concentrations at the highest percentile of population exposure; and the NATA assessment should assess more pathways than inhalation risks. As further documentation of these concerns, one of the commenters attached

(and provided a brief summary of ) the 1999 NESCAUM Peer Review of the U.S. EPA's DRAFT Estimation of Motor Vehicle Toxic Emissions and Exposure in Selected Urban Areas (October 1999). The commenter also attaches a chart to show how the approach taken in the section 202(l) studies differs from other EPA regulatory actions. Another commenter also cites to NESCAUM's critique, and also notes that the studies relied on by EPA do not properly account for either cumulative risk or emissions from non-road motor vehicles. The commenter argues that these types of deficiencies cause EPA to underestimate the dangers to the public posed by MSATs.

Letters:

Consumer Policy Institute (IV-D-8) p. 5  
NESCAUM (IV-D-10) p. 9

**Response to issue 2.2(D)(1):** The Agency does not dispute the fact that the area of risk assessment for air toxics is an evolving area of research. The commenter's litany of shortcomings in the Agency's assessment capabilities identifies some areas where the Agency has been working to make improvements, as well as some areas that need additional improvement. In this case, the Agency's action is based on the best information available at this time. For the record, there has been significant progress over the last decade in our understanding of adverse health effects related to air toxics. For example, the 1999 mobile source air toxics study contained superior modeling of urban air toxic emissions and exposure concentrations due to extensive modeling of fuel properties within 10 metropolitan area across the nation. One limitation of the 1999 study was its reliance on carbon monoxide personal exposures as a surrogate for air toxic exposures. Although CO is a reasonable surrogate for exposure to toxics emissions, it is less reliable for more photochemically reactive compounds than those that are relatively inert. The next generation exposure model no longer relies on a CO-surrogate methodology. Instead of using direct CO measurements as surrogates to model toxics exposures, it uses modeled toxics concentrations as input. Although using modeled data instead of direct measurements as input has its own inherent limitations, we believe this change represents an improvement for most applications. The database of human activity diaries has been substantially improved with thousands of additional entries, although results of sensitivity analyses indicate that had the more extensive activity database been available when the exposure modeling was done, it would have had a minimal impact on the results. In other areas, such as hot spots or cumulative exposures, the Agency will continue to commit resources to further research.

- (2) Commenters provided detailed criticism of the use of the Hazardous Air Pollutant Exposure Model to support this rulemaking. Commenters challenged a number of specific elements of these models, including that the models: rely on limited time-activity diary data; do not account for the evaporative loss of benzene; assume toxic concentrations are proportional to the carbon monoxide concentration; assume an average ambient concentration for carbon monoxide over a 50 km study area; do not justify microenvironmental factors; do not provide ranges for average exposure estimates; do not estimate exposure for the upper 10% of the population; do not adequately represent the variance in the population exposures; have no input parameters available for public review; and are too complicated for

interested parties to evaluate the model predictions more thoroughly. In hearing testimony, one commenter stated that non-road emissions will be an increasing problem and the lack of consideration of non-road sources was a significant problem in this study.

Letters:

Environmental Systems Products (IV-D-25) p. 9-11  
NESCAUM (IV-D-10) p. 12-13  
NESCAUM (IV-F-1) p. 24, 27-30

**Response to issue 2.2(D)(2):** We agree that, to the extent possible, cumulative risks across source categories and pollutants should be addressed in a risk characterization, including multiple pathways of exposure. The Technical Support Document for this rule includes a review of available ambient concentration and exposure data. It also identifies significant limitations associated with available tools and methods. Despite limitations in these tools and methods, they are useful in helping the Agency develop priorities for research and regulatory evaluations.

We would like to note that EPA has assessed population exposures in urban areas, although the tools currently available lack the refinement to estimate individual exposures in urban "hotspots." Furthermore, the model is designed to estimate average population exposures, and the Agency believes it is less accurate at the low and high end of the exposure distribution. Although one commenter recommended using ambient concentrations rather than exposure estimates to characterize risk, such an approach would be inconsistent with the Agency's own risk assessment guidelines (available at [www.epa.gov/ncea](http://www.epa.gov/ncea)). Ambient concentrations do not take into account differences in concentration levels within different microenvironments, or time people spend in these microenvironments.

The Technical Support Document for this rule presents on-highway mobile source exposure estimates developed using the Hazardous Air Pollutant Exposure Model for Mobile Sources, version 3 (HAPEM-MS3). All input parameters used in the model are publicly available. This model uses CO as a tracer for toxics. Since most ambient CO comes from cars and light trucks, we believe CO exposure is a reasonable surrogate for exposure to toxics emissions. Since carbon monoxide is relatively inert, and some modeled compounds are photochemically reactive, we adjusted results to account for differences in photochemical reactivity.

The model simulates the movement of individuals between home and work and through a number of different micro-environments. Activity data used in the model were obtained from a three-city database which included about 3600 person days of data from 23 demographic groups, including African Americans and Hispanic Americans, not just Caucasians as stated by one commenter. However, data for non-English speaking demographic groups are limited.

The CO concentration in each micro-environment is determined by multiplying the ambient concentration by a micro-environmental factor. Ambient concentrations are obtained from monitor data, with urban areas divided into 20km districts around each monitor, not 50km as one commenter stated. The microenvironmental factors were derived using paired

ambient and personal exposure monitor measurements from CO studies in Denver and Washington. Modeled CO exposure attributable to on-highway vehicle emissions for 1990 was divided by 1990 CO grams per mile emission estimates to create a conversion factor. The conversion factor was applied to modeled toxic emission estimates (in grams per mile) to determine exposure to on-highway vehicle toxic emissions. The modeling approach accounts for evaporative benzene emissions, but does not account for differences in spatial and temporal distributions of benzene evaporative emissions relative to benzene exhaust emissions. The modeling also does not account for exposures to benzene emissions originating in attached residential garages. These exposures may be significant, as discussed in the Technical Support Document. Comparison of HAPEM-MS3 based estimates of exposure to other available data sources suggest that the HAPEM-MS3 approach provides reasonable estimates of inhalation exposure.

The NATA National Scale Analysis will address cancer and noncancer inhalation risk from all outdoor sources, assuming lifetime population exposure to 1996 levels. It also addresses some of the limitations identified in the HAPEM-MS3 exposure methodology. For instance, it estimates exposure based on modeled toxics concentrations, rather than relying on the CO tracer approach described above. This assessment will include more extensive time activity data than in previous exposure assessments done by the Office of Transportation and Air Quality. Moreover, it will address non-cancer health endpoints across pollutants for specific target organs and organ systems. This includes respiratory effects.

It should be noted that the model cannot estimate individual exposures. The data are also still limited for non-English speaking demographic groups. Moreover, the National Scale Analysis will not include risks from indoor sources or non-inhalation pathways. The Agency does not currently have the tools to conduct a comprehensive multimedia assessment that includes indoor and outdoor sources. In addition, the National Scale Analysis will not account for substantial reductions in risk as a result of current and future mobile source control programs.

The purpose of this assessment is to help identify pollutants of greatest potential concern, and to set priorities for collection of additional air toxics data to improve future assessments. It is not designed to characterize risks sufficiently for regulatory action.

- (3) In addition to the problems identified in the methodology, commenters also argued that the risk characterization and management methodology conducted under the proposed regulation is not consistent with Agency practice.

Letters:

Environmental Systems Products (IV-D-25) p. 1-2  
NESCAUM (IV-D-10) p. 9-10, att.

**Response to issue 2.2(D)(3):** The commenter would like the Agency to use the regulatory approach typically used when promulgating rules based on attainment and maintenance of an established NAAQS. In NAAQS-based rulemakings, the Agency develops national and regional emissions inventories and forecasts future ambient concentrations of air pollution of concern across the nation. For the populations that live in areas with projected concentrations

above the relevant NAAQS, there is a reasonable risk of adverse health effects. This forms that basis of a NAAQS-based rulemaking.

The commenter would like the Agency to use the 10<sup>-6</sup> risk level as a de facto NAAQS. However, in the case of air toxics there are no agreed-upon health based standards for ambient concentrations. An exposure model called HAPEM is used to translate ambient concentrations into risk levels. This additional step is made necessary by the lack of a standard for determining that ambient concentrations place the population exposed to them at risk.

Section 202(l)(2), however, does not establish this kind of health- or risk-based scheme. Instead we are directed to address those emissions causing or contributing to air pollution problems by adopting controls meeting the technology-based "achievability" criteria in section 202(l)(2).

**(E) EPA fails to clearly describe what it believes the framework to construct a national MSAT program is or should be.**

- (1) Instead the NPRM describes what existing programs, not designed for toxics, are expected to do. EPA also fails to describe what it will do between now and 2004 to develop the 2004 proposal. Clearer descriptions are necessary for adequate comment on the NPRM.

Letters:

Consumer Policy Institute (IV-D-8) p. 2

**Response to issue 2.2(E)(1):** As stated previously, the Agency acknowledges the fact that the science of risk assessment for air toxics is evolving. The contribution from this rulemaking is to identify and describe existing data gaps for future research. The development of a framework for a national MSAT program will grow out of the workshops and research agenda articulated in the rule. Interested readers should refer to our description of the Technical Analysis Plan in the preamble for this rule, which contains additional details.

**2.3: Environmental Justice Concerns**

**(A) Commenter supports EPA's plans to address "hotspots" in low income and minority communities.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Oregon Environmental Council (IV-D-9) p. 1

**Response to issue 2.3(A)(1):** Several commenters expressed general support for our plan to address "hot spots" in low income and minority communities. As noted in the preamble for this rulemaking, the NATA National Scale Analysis reports distributions of concentrations

across census tracts nationally and at the county level. While providing a significant and informative body of information, these studies do not address exposures to toxics in hot spot areas. As the Agency has stated in the Integrated Urban Air Toxics Strategy, we also want to consider the disproportionate impacts of air toxics in hot spot areas. Hot spots are generally thought of as areas with elevated pollutant levels that could be associated with elevated exposures and potentially serious health risks. At higher pollutant concentrations, the potential for risk increases, making it important to characterize the distribution of exposure in the population. States and local air pollution control agencies have raised the hot spots issue as a major concern that needs to be addressed in a comprehensive air toxics risk characterization.

To improve our ability to characterize MSAT exposures to highly exposed subpopulations requires better information regarding ambient concentrations of MSATs in hot spot areas and appropriate microenvironmental factor values for high-exposure microenvironments. As part described in our discussion of the Technical Analysis Plan in the preamble for this rule, EPA is developing local-scale emissions and dispersion models for mobile sources to better inform the Agency and the public about potential hot spots. In addition, EPA is conducting spatially refined urban area modeling (including mobile sources).

**(B) The proposal fails to adequately address the issue of environmental justice.**

- (1) The proposal cannot meet the requirements of the President's Executive Order on Environmental Justice. EPA must construct a national MSAT program that protects those most exposed to unacceptably high concentrations of mobile source emissions.

Letters:

Consumer Policy Institute (IV-D-8) p. 5

- (2) Commenter provides no further supporting information or detailed analysis.

Letters:

EarthJustice Legal Defense Fund (IV-D-32) p. 2

**Response to issues 2.3(B)(1) and (2):** Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, is intended to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directs federal agencies to develop environmental justice strategies to aid federal identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment. The Presidential Memorandum accompanying the Order underscores certain provisions of existing law that

can help ensure that all communities and persons across this nation live in a safe and healthful environment.

One of the provisions of the Executive established an Interagency Working Group (IWG) on environmental justice chaired by the EPA Administrator and comprised of the heads of eleven departments/agencies and several White House offices. EPA has also developed a strategy to address environmental justice. The strategy contains five major areas with include: 1) Public Participation and Accountability, Partnerships, Outreach, and Communication with Stakeholders; 2) Health and Environmental Research; 3) Data Collection, Analysis, and Stakeholder Access to Public Information; 4 American Indian and Indigenous Environmental Protection; and 5) Enforcement, Compliance Assurance, and Regulatory Reviews.

The program established in this rule conforms with the requirements of the Environmental Justice executive order. By setting new gasoline toxics performance standards for a broad set of gaseous toxics that ratchet down existing requirements, we ensure that emissions performance will not deteriorate below today's levels in all areas as well as in minority and low-income communities. In addition, as described in the response to issue 2.3(A)(1) above, the Technical Analysis Plan described in the preamble for this rule contains a plan to address more carefully urban hotspots and air toxics exposure for sensitive subpopulations.

#### **2.4: Consistency with Integrated Urban Air Toxics Strategy**

**(A) The failure to substantively and comprehensively address MSATs in the proposed rule is contrary to EPA's Integrated Urban Air Toxics Strategy (IUATS).**

- (1) The Agency has spoken extensively and for years about the contribution of mobile sources to air toxics, particularly when trying to justify not placing additional controls on sources of air toxics, like area sources. The Urban Air Toxics Strategy is a prime example of this. The Agency is playing a dangerous shell game by promising to address air toxics including mobile sources and then failing to put forward a mobile source toxics strategy that meets that commitment. The danger lies in allowing the public to continue to be exposed to air pollutants many times health based thresholds for many years to come. For the Urban Air Toxics Strategy to succeed, EPA must address mobile source air toxics.

Letters:

Consumer Policy Institute (IV-D-8) p. 2  
Puget Sound Clean Air Agency (IV-D-27) p. 1-2

**Response to issue 2.4(A)(1):** As explained in greater detail in the Technical Support Document for this rulemaking, the Integrated Urban Air Toxics Strategy (IUATS) has three primary goals:



- Attain a 75-percent from reduction from 1990 levels in the incidence of cancer attributable to exposure to HAPs emitted by stationary sources
- Attain a substantial reduction from 1990 levels in public health risks posed by emissions from area sources
- Address disproportionate impacts of air toxics hazards across urban areas

The third goal will involve consideration of both stationary and mobile source emissions of HAPs, as well as sources of HAPs in indoor air. Today's rule fits into the IUATS in that it provides the mobile source component of the Agency's program to reduce air toxics emissions from mobile sources. The standards being finalized are intended to maintain current levels of over-compliance with gasoline toxics performance requirements under the federal reformulated gasoline and anti-dumping programs, thus ensuring that the toxics emissions performance of gasoline does not deteriorate. With regard to additional controls, the Agency is not engaged in a "shell game" to defer action on mobile source air toxics to the IUATS. Instead, the preamble for this rulemaking includes a description of a Technical Analysis Plan that we will implement to obtain the information we need to assess the need for and feasibility of additional control measures that may reduce exposure to mobile source air toxics even more, both for the general population and for sensitive populations or those living in "hot spot" areas.

With regard to the continuing exposure to mobile source air toxics, as explained in the preamble and Technical Support Document for this rulemaking, inventories of on-highway vehicle air toxics are expected to decline substantially over the next 20 years as a result of emission control programs that were put in place primarily to reduce ambient concentrations of criteria pollutants through volatile organic compound (VOC), carbon monoxide (CO) and particulate matter (PM) controls. By 2020, these programs are expected to reduce the levels of on-highway emissions of benzene by 73 percent, formaldehyde by 76 percent, 1,3-butadiene by 72 percent, and acetaldehyde by 67 percent from 1990 levels. In addition, by 2020, we expect to see on-highway diesel PM emission reductions of 94 percent from 1990 levels. The reductions expected from our existing nonroad control programs are also expected to be significant, although not as substantial as the reductions for on-highway vehicles. Consequently, public exposure to mobile source air toxics is expected to decline substantially over the next 20 years.

- (2) One commenter argued that the IUATS deferred risk characterization and emission reduction goals to the section 202(l) rulemaking. EPA needs to clarify how the proposal addresses the risk reduction goals of the IUATS when it addresses only benzene and does not seek any emission reductions. Moreover, this and another commenter noted that the IUATS commits EPA to consider cumulative risks presented by exposure to HAPs, but the studies relied on in the section 202(l) rulemaking use a narrow evaluation of the average, population-based, risk contribution of on-road sources.

Letters:

Environmental Systems Products (IV-D-25) p. 8  
NESCAUM (IV-D-10) p. 9-10

NESCAUM (IV-F-1) p. 26-28

**Response to issue 2.4(A)(2):** See response to 2.4.A(1), above. While this rule does not contain specific emission control programs that reduce exposure and risk from mobile source air toxics, and instead seeks to maintain over-compliance with the federal reformulated gasoline and anti-dumping programs, it nevertheless addresses the risk reduction goals of the IUATS. First, it estimates the reductions in mobile source air toxics inventories that are associated with current mobile source programs that were put in place primarily to reduce ambient concentrations of criteria pollutants. This information will be used in our upcoming risk analysis study, to be completed as part of our Technical Analysis Plan. Second, the rule identifies the data gaps that must be filled to perform a more comprehensive analysis of mobile source air toxics control measures. This includes information about the effectiveness and costs of vehicle, fuel, and nonroad controls as well as about exposure and risk for sensitive subpopulations, the range of total public exposure to air toxics, and the inventory impacts of nonroad sources. We will collect information about these issues as part of the Technical Analysis Plan we will implement as described in Section VII of the preamble for this rule and will use this information in a future mobile source air toxics rulemaking to be completed no later than July 1, 2004. These three activities, the risk analysis, Technical Analysis Plan, and future rulemaking, further our progress toward the goals of the IUATS.

EPA will also be looking at cumulative risk as part of our IUATS and National Air Toxics Assessment activities as well as through our Technical Analysis Plan.

### ISSUE 3: DESIGNATION OF MSATS

#### 3.1: General Comments on MSAT List

##### (A) Generally supports the proposed MSAT list.

- (1) Commenter notes that the listing process may move EPA to monitor the listed pollutants more closely in urban and surrounding areas.

Letters:

Clean Air Network, et al (IV-D-38) p. 2

**Response to issue 3.1(A)(1):** We will continue to focus toxics monitoring on pollutants that current information suggests may pose the greatest risk based on the quantity of emissions in urban and surrounding areas. Specific studies designed to assess the potential health effects associated with exposure in mobile source hotspots will include an assessment of the MSATs to the degree possible.

##### (B) Mobile Source Air Toxics (MSAT) should be changed to Mobile Source HAPS (or MSHAPS) to better convey that these chemicals have the potential to be toxic (i.e., cause harm) but only at high enough concentrations at long enough exposures.

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 2

**Response to issue 3.1(B)(1):** We disagree that the MSATs should be renamed to convey an understanding of potential to cause harm. The compounds on the MSAT list were not chosen based on the potential risk associated with exposure to these compounds. Inclusion of a compound on the MSAT list does not constitute a determination by EPA that emissions of the compound in fact present a risk to public health or welfare, or that it is appropriate to adopt controls to limit the emissions of such a compound from motor vehicles or their fuels. The purpose of the list is to provide a screening tool that identifies those compounds emitted from motor vehicles or their fuels for which further evaluation of emissions controls is appropriate. In conducting any such further evaluation, pursuant to sections 202(a) or 211(c) of the Act, EPA would consider whether emissions of the compound cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare. Such an evaluation would also consider the appropriate level of any controls, based on the criteria established in section 202(l)(2). Inclusion of a compound on the MSAT list does not decide these issues, but instead identifies those compounds for which such an evaluation would appear to be warranted.

##### (C) An independent third party review should be conducted by EPA of the Mobile Source Air Toxics (MSAT) list of compounds.

- (1) Commenter questions the selection of some of the compounds EPA has identified as MSATs, in particular the commenter does not believe diesel exhaust is appropriate for inclusion in the MSAT list. The commenter discusses the ability of the Health Effects Institute (HEI) to conduct health effects testing on specific compounds of interest as well as their ability to assist the Agency in assessing which pollutants might be of public health concern.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 2

**Response to issue 3.3(C)(1):** We have and will continue to invite comment and review of our Mobile Source Air Toxics list as new information becomes available. We are actively engaged with HEI in setting priorities and directions for work funded through this organization. Research funded through HEI is used by EPA in determining the cancer and noncancer health effects of the compounds listed in the Integrated Risk Information System that EPA uses in the approach to list MSAT. The specific issue of inclusion of diesel exhaust in our list of MSAT is addressed under the response to comment on issue 3.3.3 (B)(1) through 3.3.3 (B)(5).

**3.2: Methodology for Identifying MSATs**

**(A) MSATs should not be limited to those compounds identified on the Integrated Risk Information System (IRIS).**

- (1) EPA should use emission speciation profiles as the primary data source used to list a MSAT. Commenter notes several reports on toxic compounds other than IRIS that could be used to flesh out EPA's MSAT list.

Letters:

NESCAUM (IV-D-10) p. 4-6

**Response to issue 3.2(A)(1):** Since the MSAT list specifically identifies those compounds that have the potential to cause a serious health effect, we cannot rely solely on emission speciation profiles as the primary source of data to list a compound as an MSAT. The Agency has established IRIS as the clearinghouse for all Agency consensus information related to the potential cancer and noncancer health effects of individual compounds. While other databases exist that report potential toxic effects of specific compounds, the review process for these databases is not consistent with that for IRIS.

**3.3: Compounds on MSAT List**

**3.3.1: Specific Pollutants to Exclude from List**

- (A) Commenter proposes that lead, manganese or manganese compounds, dioxin/furan, arsenic compounds, chromium compounds, mercury compounds,**

**and nickel compounds be removed from the list because they are either already regulated by EPA or they do not occur in high enough levels.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 2-3

**Response to issue 3.3.1(A)(1):** See response under 3.3.1(C)(1) below.

**(B) Arsenic should not be included on the list at least with respect to on-road sources.**

- (1) Arsenic is not found in the exhaust of modern gasoline-fueled vehicles. However, commenter notes that it may be emitted by non-road and aircraft sources. Commenter cites an SAE report that arsenic was found to be not significantly greater than zero in 1995 Ford vehicle tests. Commenter recommends that the Draft Support Document indicate that arsenic was below the limits of detection.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 3

**Response to issue 3.3.1(B)(1):** While in the speciation study to which the commenter refers,<sup>3</sup> arsenic was not found in motor vehicle exhaust at levels above the method detection limit, we include arsenic on the motor vehicle list of MSATs due to the presence of this element in the SPECIATE database for motor vehicle emissions.<sup>4</sup> Updates to the SPECIATE database are planned for the future which may change the listing of some compounds, including arsenic. When we re-open the rulemaking in 2003 any changes to the SPECIATE database will be used to revise the MSAT list as required.

**(C) N-hexane has little or no inherent activity and should not be included on the list.**

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<sup>3</sup>Ball, James C. (1997) Emission Rates and Elemental Composition of Particles Collected from 1995 Ford Vehicles Using the Urban Dynamometer Driving Schedule, the Highway Fuel Economy Test, and the US06 Driving Cycle. Society of Automotive Engineers, SAW paper No. 97FI-376.

<sup>4</sup>EPA (1993) Volatile Organic Compound (VOC) / Particulate Matter (PM) Speciation Data System (SPECIATE), Version 1.5. <http://www.epa.gov/ttn/chief/software.html#speciate>. Arsenic is found in profiles 32102 and 32103, for light duty diesel vehicles. These data were originally from the PM10 Source Composition Library for the South Coast Air Basin, Prepared by NEA, Inc., July 15, 1987.

- (1) The health effects of n-hexane are only at very high concentrations, and it is likely that n-hexane at ambient concentrations has no effects on any organism.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 3

**Response to issue 3.3.1(A)(1) and (C)(1):** As explained above, our approach for listing a compound as an MSAT is based on the presence (not the quantity of emissions) of the compound in the emissions from motor vehicles or their fuels and an Agency consensus view, as expressed on IRIS, that the compound has the potential to cause serious adverse health effects. In keeping with this approach, we will maintain n-hexane, lead compounds, manganese compounds, dioxin/furan, arsenic compounds, chromium compounds, mercury compounds, and nickel compounds on our list of MSATs. As discussed above, it should be noted that inclusion of these compounds on the MSAT list is not itself a determination by EPA that environmental exposures to emissions of the compound in fact present a risk to public health or welfare, or that it is appropriate to adopt controls to limit the emissions of such a compound from motor vehicles or their fuels. The purpose of the list is to provide a screening tool that identifies those compounds emitted from motor vehicles or their fuels for which further evaluation of emissions controls is appropriate. While some of these compounds may be regulated under separate EPA programs, this list is specific for those compounds emitted from motor vehicles.

**(D) Propionaldehyde should not be added to the list.**

- (1) Given the low expected toxicity of propionaldehyde, it should not be included as a HAP from mobile sources.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 3

**Response to issue 3.3.1(D)(1):** We are not including propionaldehyde on the list of MSATs at this time because we do not have an Agency consensus view as expressed on IRIS regarding the potential serious adverse health effects associated with exposure to this pollutant. EPA will continue to assess the possible inclusion of this compound on the list of MSATs when we re-open this rulemaking in 2003.

**(E) Styrene should be removed from the list.**

- (1) Styrene is not a fuel component and is only present as a product of combustion. Because EPA does not establish any specific regulatory requirements or criteria relating to styrene, because the toxicological review of styrene is still underway, because its presence in gasoline is questionable, and because of technical inconsistencies and data gaps relating to styrene and mobile source emissions, EPA should defer the determination of whether styrene is an MSAT to a future rulemaking. The current toxicological review

being conducted under the IRIS program will allow for an appropriate technical determination in the future.

Letters:

Styrene Information and Research Center (IV-D-12) p. 2

**Response to issue 3.3.1(E)(1):** The Agency re-assessment of styrene is being conducted to incorporate new information regarding potential noncancer and cancer health effects resulting from exposure to this compound and will not result in the removal of styrene from the IRIS database. In the NPRM we mistakenly listed styrene as a component of gasoline. Styrene is a product of gasoline combustion and is currently listed in IRIS for ingestion and inhalation noncancer health effects. In keeping with our approach to list a compound as an MSAT based on the presence of the compound in the emissions from motor vehicles or their fuels and an Agency consensus view, as expressed on IRIS, that the compound has the potential to cause serious adverse health effects, we are maintaining styrene on our list of MSATs.

**3.3.2: Additional Pollutants that EPA Should List**

**(A) EPA should investigate whether methanol and/or methyl nitrite should be added to the MSAT list.**

- (1) Commenter attaches two articles discussing how the combustion of gasoline with methanol and MTBE may create methyl nitrite, and that the production of methyl nitrite in MTBE may be contributing to epidemics of asthma. The commenter states the need to establish whether methanol and/or methyl nitrite should be added to the list of mobile source air toxics. (Troops et al., "NO reduction over La2O3 using methanol, Catalysis Letters 2000, 64; P.M. Joseph, "New Hypotheses for MTBE Combustion Products, 92nd Annual Meeting Air & Waste Management Association, June 20-24, St. Louis, Missouri.)

Letters:

Browne, William G. (IV-D-6) p. 1-2

**Response to issue 3.3.2(A)(1):** Regarding methyl nitrite, the Agency does not have an Agency consensus as expressed on IRIS regarding the potential health effects of methyl nitrite and therefore will not list methyl nitrite as an MSAT at this time. We did not include methanol on our proposed list of MSAT because it was not identified in our analysis of speciated emissions from motor vehicles. Instead, in the NPRM, we requested comment on whether methanol and ethanol, by virtue of their use in alternative fuel vehicles, should be included on the list. The commenter directed EPA to studies that identify methanol as an emissions product of motor vehicles burning reformulated gasoline. In order to provide a full opportunity for public comment regarding the information received, we will address the addition of methanol to the MSAT list in a future rulemaking. We believe it is reasonable to defer making a decision on listing methanol until after today's rulemaking, because listing in today's rulemaking would not result in additional controls. The existing motor vehicle VOC

controls will reduce emissions of methanol along with other gaseous toxics and fuel controls will need to be considered in subsequent rulemakings. As part of the future notice addressing addition of methanol to our list of MSAT, we will also evaluate possible controls in accordance with section 202(l)(2) as appropriate.

**(B) EPA should include propionaldehyde and 2,2,4-trimethylpentane on the MSAT list.**

- (1) The CAAA has specifically listed these pollutants as HAPs, and therefore EPA need not draw any conclusions on the potential adverse health effects associated with exposure to these pollutants.

Letters:

Consumer Policy Institute (IV-D-8) p. 4

**(C) EPA should further study 2,2,4-trimethylpentane for potential inclusion.**

- (1) Acute and chronic testing of this compound should be continued to better understand its potential toxicity.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 4

**Response to issue 3.3.2 (B)(1) and (C)(1):** We are not including propionaldehyde or 2,2,4-trimethylpentane on the list of MSATs at this time because we do not have an Agency consensus view as expressed on IRIS regarding the potential serious adverse health effects associated with exposure to this pollutant. EPA will continue to assess the possible inclusion of these compounds in the list of MSATs when we re-open this rulemaking in 2003.

**3.3.3: Additional Pollutants that EPA Should Not List**

**(A) EPA should not add methanol to the MSAT list.**

- (1) EPA did not make a full, reasonable and good faith effort to solicit broad public input on the question of listing methanol as an MSAT. Without full notice and comment on this issue, a decision on the part of EPA to list methanol on the MSAT list could be viewed as arbitrary and capricious. Thus, if EPA chooses to press forward with listing methanol, it should do so only in a supplemental or separate proposed rulemaking.

Letters:

American Methanol Institute (IV-G-03) p. 1-2, 4-5

**Response to issue 3.3.3(A)(1):** We did not include methanol on our proposed list of MSAT because it was not identified in our analysis of speciated emissions from motor vehicles. Instead, in the NPRM, we requested comment on whether methanol and ethanol,



by virtue of their use in alternative fuel vehicles, should be included on the list. During the comment period, one commenter directed EPA to studies that identify methanol as an emissions product of motor vehicles burning reformulated gasoline. In order to provide a full opportunity for public comment regarding information received we will address the addition of methanol to the MSAT list in a separate rulemaking.

- (2) Even if EPA could overcome the procedural problems, EPA has produced no data to support listing methanol as an MSAT. The data used for listing methanol in IRIS are out-of-date and not comprehensive. The AWMA article that EPA appears to rely on, although published in 1994, is based on unrepresentative fuel in vehicles that are 16-24 years old. In addition, the only comment mentioning methanol is more concerned with methyl nitrite; if EPA wants to list an additional MSAT, it should consider that substance, not methanol. Also, in listing methanol but not ethanol (which does yield toxic exhaust products), EPA is treating ethanol and methanol inconsistently. Finally, EPA fails to analyze the overwhelming preponderance of biogenic methanol versus mobile source emissions.

Letters:

American Methanol Institute (IV-G-03) p. 2-4

**Response to issue 3.3.3(A)(2):** As stated above, in order to provide a full opportunity for public comment regarding the information received, we will address the addition of methanol to the MSAT list in a separate rulemaking. In that action we will address any comments on the data used at that time to support EPA's decision.

**(B) EPA should not add ethanol to the MSAT list.**

- (1) The Agency is correct in not listing fuel ethanol as an MSAT.

Letters:

Renewable Fuels Association (Insert Comment Identification) p. 1-2

**Response to issue 3.3.3(B)(1):** The Agency agrees that ethanol should not be included in the list of MSATs at this time because we don't have peer-reviewed consensus Agency opinion on the toxicity of ethanol as reflected in the Integrated Risk Information System.

**3.3.4: Listing of Diesel Exhaust**

**(A) Commenter supports listing of whole diesel exhaust rather than just particulate.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 1  
NESCAUM (IV-D-10) p. 7

- (2) Emissions control technologies could control diesel particulate while leading to increased risks from exposure to gaseous diesel emissions.

Letters:

Consumer Policy Institute (IV-D-8) p. 4

- (3) Diesel exhaust is a known or suspected cause of cancer or other serious health consequences, and EPA should control it accordingly. One of the commenters notes that according to a study by the State and Territorial Air Pollution Program Administrators, more than 1100 people in the Portland metro area will get cancer from diesel emissions over a lifetime of exposure. Another commenter supported the listing because it will help EPA address diesel exhaust concerns, especially from non-road sources.

Letters:

Clean Air Network, et al (IV-D-38)  
Oregon Environmental Council (IV-D-9) p. 1

**Response to issues 3.3.4 (A)(1) through (A)(3):** We agree that diesel exhaust should not be listed as diesel particulate matter only because currently available science, while suggesting an important role for the particulate phase component of diesel exhaust, does not attribute the serious cancer and noncancer health effects independently to diesel particulate matter separate from the gas phase components. We agree that, in part because of the health effects attributed to diesel exhaust, appropriate controls on diesel exhaust should be implemented. We are promulgating heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements to achieve the greatest degree of control that is technologically feasible. We do not agree that the data currently available provide sufficient information from which to estimate the possible number of cancer cases attributable to diesel exhaust in specific geographic regions. Instead of listing whole diesel exhaust, we have chosen to be more specific about the toxic components of diesel exhaust by listing diesel particulate matter and diesel exhaust organic gases.

**(B) Commenter opposes classification of diesel exhaust as a mobile source toxic.**

- (1) One commenter stated that individual compounds and components of diesel exhaust can be controlled with aftertreatment technology, but "diesel exhaust" can only be controlled by restricting or eliminating the diesel engine. The commenter argued that the Act was intended to focus not on the type of engine but on the specific compounds emitted from vehicles which may pose health concerns. Another commenter raised similar concerns and argued that the listing would penalize unfairly the diesel engine because "diesel exhaust" can not be reduced or eliminated even if the nature of the compounds within the exhaust are modified. These and other commenters argued that EPA must identify the specific components of diesel exhaust, study these

components, and establish controls for these components if necessary based on those studies. For instance, one commenter noted, CO<sub>2</sub> and water vapor are the primary components of diesel exhaust, but clearly are not toxics. Another commenter argued that one of the criteria EPA used to list MSATs was speciated emissions data, which clearly cannot apply to diesel exhaust.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 4-5**  
Alliance of Automobile Manufacturers (IV-F-1) **p. 64**  
American Petroleum Institute (IV-D-21) **p. 6**  
Engine Manufacturers Association (IV-D-39) **p. 2-5, att.**  
Engine Manufacturers Association (IV-F-1) **p. 10, 14, 16**  
Koch Petroleum Group (IV-D-36) **p. 3**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 2, 6**  
National Petrochemical and Refiners Association (IV-D-33) **p. 15**

- (2) A broad and vague listing of diesel exhaust fails to give diesel fuel producers and diesel engine manufacturers a clear target to consider for potential engineering changes. One commenter noted that even if manufacturers eliminated all toxic compounds in the exhaust, diesel engines would still be deemed to have toxic "diesel exhaust" emissions, which documents the illogic of EPA's proposal. This vague listing also makes it impossible to establish a metric for measuring the listed compound in the ambient air or in emissions, or to determine the emissions reduction levels achievable through various controls.

Letters:

Engine Manufacturers Association (IV-D-39) **p. 3, 5, att.**  
Engine Manufacturers Association (IV-F-1) **p. 14**  
Tosco (IV-D-41) **p. 2**

- (3) Commenter cites its previous comments under the HDDE rule, and states that the data supporting a connection between diesel exhaust and lung cancer are extremely weak, with conflicting results, and limited evidence of causality in the epidemiological database. These weak data are insufficient to support inclusion of diesel exhaust as the only non-HAP on the MSAT list. Moreover, as EPA acknowledges in the Technical Support Document for this rulemaking, the non-cancer health effects identified for diesel exhaust appear to be the same as those caused by fine PM. Thus there is no basis for including diesel exhaust as an MSAT based on non-cancer health effects, but not including other contributors to PM.

Letters:

International Truck and Engine Corp. (IV-D-30) **p. 3**

- (4) Commenter argues that listing diesel exhaust is not scientifically supportable. The composition of diesel exhaust is variable based on numerous factors. Moreover, over 99% of diesel exhaust consists of N, O<sub>2</sub>, CO<sub>2</sub> and H<sub>2</sub>O, none of which are toxic. In addition, diesel exhaust is not being treated equally with other emission sources: by listing diesel exhaust as toxic, EPA is indicating that emissions from one source are toxic while those same emissions from any other source are not toxic. Finally, any listing should await the final outcome of the formal review process by CASAC of the Diesel Health Assessment Document prepared by EPA.

Letters:

Engine Manufacturers Association (IV-D-39) **p. 2-6, att.**  
Engine Manufacturers Association (IV-F-1) **p. 14-15**

- (5) While opposing the listing of diesel emissions as an MSAT, some commenters did indicate that, at most, EPA should consider only diesel particulate as a potential toxic contaminant, which is the only fraction of diesel exhaust that EPA has identified as being of potential concern. EPA would have to study diesel PM further to determine if it should be reported as a separate toxic substance. One of these commenters noted that the Tier 2 and HDDE rules likely would address many of the concerns with diesel exhaust, and that by focusing only on diesel PM, EPA would be able to consider any remaining toxic issues with diesel exhaust. Another commenter suggested listing particulate matter generally, and then studying the issue further with a later decision as whether any particular subset of particulate matter should be listed. Another commenter similarly noted that the IRIS listing (which EPA uses as a basis for its proposal) used studies based on diesel particulate matter, not whole diesel exhaust. This background is one reason why EPA should not list diesel exhaust. However, this and other commenters also believe that even diesel particulate matter should not be listed. One reason is that the IRIS listing is currently under review because of uncertainty. The commenters opposed to listing diesel PM stated that it is unclear whether diesel PM is distinguishable from other sources of PM. The appropriate listing, if any, would have to be PM generally, or PM within a certain size range, because EPA cannot distinguish diesel PM from other sources of PM.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 5**  
Alliance of Automobile Manufacturers (IV-F-1) **p. 64-65**  
Detroit Diesel (IV-F-1) **p. 75-76**  
Engine Manufacturers Association (IV-D-39) **p. 5, att.**  
Engine Manufacturers Association (IV-F-1) **p. 15**  
ExxonMobil (IV-D-16) **p. 1-2**  
International Truck and Engine Corp. (IV-D-30) **p. 4**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 6**

**Response to issues 3.3.3 (B)(1) through (B)(5):** We have changed our designation of diesel exhaust as an MSAT to diesel particulate matter and diesel exhaust organic gases (DPM + DEOG). This listing approach is more precise about the components of diesel exhaust expected to contribute to the observed cancer and noncancer health effects and provides a framework for developing regulatory control strategies. Currently available science, while suggesting an important role for the particulate phase component of diesel exhaust, does not attribute the serious cancer and noncancer health effects independently to diesel particulate matter separate from the gas phase components. Because the studies cannot separate the health effects of the particulate and gaseous components of diesel exhaust, nor identify specific compounds responsible for the health effects of diesel exhaust, we are listing them together as a single MSAT.

We have made this change in listing diesel exhaust in response to the commenters concerns. This listing excludes the nontoxic components of diesel exhaust (e.g., water vapor, nitrogen, oxygen) while still including the components of diesel exhaust that are likely to contribute to the cancer and noncancer hazard (with the exception of the gaseous phase criteria pollutants, such as NO<sub>x</sub>, SO<sub>2</sub> and CO which are subject to National Ambient Air Quality Standards). The listing of DPM + DEOG provides Federal and State government, industry, and public interest groups an ability to focus on the components of diesel exhaust that pose a potential concern for public health as well as providing specific targets for emissions reductions should future analysis indicate that additional controls become necessary.

The Integrated Risk Information System (IRIS) listing for diesel engine emissions and the summary of cancer and noncancer health effects described in the draft Health Assessment Document for Diesel Exhaust are based on studies linking serious adverse health effects to whole diesel exhaust exposure, using diesel particulate matter as the measure of dose. Speciation of diesel exhaust is not a criteria for listing as an MSAT. To be listed as an MSAT the candidate pollutant must be present in the emissions of motor vehicles and have a listing on the EPA IRIS database.

We disagree with the comment that the data supporting a connection between diesel exhaust and lung cancer are extremely weak. Individual epidemiological studies numbering about 30 show increased lung cancer risks of 20 to 89 percent within the study populations depending on the study. The draft Health Assessment for Diesel Exhaust evaluated only 22 of these studies because those were identified as being the most relevant for risk assessment. Among these 22 studies, 16 reported statistically significant increased lung cancer risks, ranging from 20 to 167 percent, associated with diesel exhaust exposure. Of the remaining six studies, the authors report either negative or inconclusive results.

Additional evidence supporting the identification of a cancer hazard for diesel exhaust includes the observation of tumors in animals following applications of various fractions of the diesel exhaust mixture to skin, and implantation of diesel particles in respiratory tissue. Recognizing that diesel exhaust is a complex mixture of carbon particles and associated organics and other inorganics, it is unclear what fraction or combination of fractions is responsible for the carcinogenicity and other respiratory effects. It has been shown, however, that the carbon particles as well as the organics have the potential to be active toxicological agents, either because of the potential to be irritants which cause inflammation, or because of a capacity to produce mutagenic and/or carcinogenic activity. In the case of the

organics (which exist both in particle and gaseous states in diesel exhaust) some have potent mutagenic and carcinogenic properties. In addition, some evidence for the bioavailability of these particle-adsorbed compounds supports a hypothesis that the adsorbed organics are bioavailable to the lung as well as being transported to sites distant from the lung.

We conclude that the consistent finding of elevated lung cancer risk across several different occupational workers (including truck drivers, railroad workers, heavy equipment operators, and farm tractor drivers) support our determination that diesel exhaust is likely to be carcinogenic to humans by inhalation exposure. The Clean Air Scientific Advisory Committee (CASAC) of the Science Advisory Board concurred with the Agency that the available data form a basis for the conclusion that diesel exhaust is likely to be carcinogenic to humans by inhalation (public session October 12-13, 2000).

Our interpretation of the data is consistent with that of several experts, including an expert panel (the Diesel Working Group) formed by the Health Effects Institute.<sup>5</sup> In the 1995 HEI study, Cohen and Higgins reviewed 34 epidemiological studies and concluded that "The studies reviewed above suggest that exposure to diesel exhaust in a variety of occupational circumstances is associated with small to moderate relative increases in lung cancer occurrence and/or mortality. These elevations do not appear to be fully explicable by confounding due to cigarette smoking or other sources of bias. Therefore, at present, exposure to diesel exhaust provides the most reasonable explanation for these elevations."<sup>6</sup>

EPA joins many other organizations in finding that diesel exhaust or diesel particulate matter is a likely or probable human carcinogen. In the late 1980s, the International Agency for Research on Cancer (IARC) determined that diesel exhaust is "probably carcinogenic to humans" and the National Institute for Occupational Safety and Health classified diesel exhaust a "potential occupational carcinogen."<sup>7 8</sup> In 1996, the International Programme on Chemical Safety of the World Health Organization listed diesel exhaust as a "probable"

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<sup>5</sup>Health Effects Institute (1995) Diesel Exhaust: A Critical Analysis of Emissions, Exposure, and Health Effects. Health Effects of Diesel Exhaust: Epidemiology; A.J. Cohen and M.W.P. Higgins. p. 268.

<sup>6</sup>Health Effects Institute (1995) Diesel Exhaust: A Critical Analysis of Emissions, Exposure, and Health Effects. Health Effects of Diesel Exhaust: Epidemiology; A.J. Cohen and M.W.P. Higgins. p. 268.

<sup>7</sup> National Institute for Occupational Safety and Health (NIOSH) (1988) Carcinogenic effects of exposure to diesel exhaust. NIOSH Current Intelligence Bulletin 50. DHHS, Publication No. 88-116. Centers for Disease Control, Atlanta, GA.

<sup>8</sup> International Agency for Research on Cancer (1989) Diesel and gasoline engine exhausts and some nitroarenes, Vol. 46. Monographs on the evaluation of carcinogenic risks to humans. World Health Organization, International Agency for Research on Cancer, Lyon, France.

human carcinogen.<sup>9</sup> In 1998, the California Office of Environmental Health Hazard Assessment (OEHHA, California EPA) identified diesel PM as a toxic air contaminant due to the noncancer and cancer hazard and because of the potential magnitude of the cancer risk.<sup>10</sup> Most recently, the U.S. Department of Health and Human Services National Toxicology Program designated diesel exhaust particles as “reasonably anticipated to be a human carcinogen” in its Ninth Report on Carcinogens.<sup>11</sup>

We state in the NPRM that there is overlap between the noncancer health effects observed with exposure to diesel exhaust and ambient PM, however, there is a wealth of information available regarding noncancer health effects attributable to ambient PM relative to the existing database for diesel exhaust. In addition, there are endpoints specific to diesel exhaust such as the potential to stimulate allergen-induced allergic airway disease in sensitive humans that have not been reported for ambient PM. Diesel engine emissions are listed in the IRIS database for the observed noncancer health effects and therefore this pollutant satisfies our listing approach for an MSAT. This listing is not based on health effects attributable solely to diesel PM as the commenter asserts. Diesel PM was used as the measure of dose in these studies which exposed laboratory animals to whole diesel exhaust. The animal test data are quite definitive in providing a basis to anticipate a hazard to the human lung resulting from diesel exhaust exposure based on the irritant and inflammatory reactions observed in test animals. Thus, EPA believes, and CASAC concurred, that it is appropriate to use the animal data to determine a reference concentration for diesel exhaust (as measured by diesel PM). In the public session on October 12-13, 2000, CASAC concurred with the calculation of the inhalation reference concentration (RfC) presented in the July 2000 Health Assessment Document with the addition of an uncertainty factor of three to extrapolate the observed health effects in animals to humans. This additional uncertainty factor is being used on the recommendation of CASAC and will result in an RfC of approximately 5 ug/m<sup>3</sup> which matches the current RfC listed on IRIS. The CASAC of the Science Advisory Board has concurred with the findings in the draft Health Assessment Document for Diesel Exhaust (public session October 12-13, 2000) and the Agency is in the processes of preparing a final Health Assessment Document that will address the comments made by the CASAC panel.

We are not listing ambient PM as an MSAT because it does not conform to the approach described above for listing an MSAT. The Agency has specific information regarding the cancer and noncancer hazard posed by diesel exhaust and we are acting on this basis. It would be under inclusive to list only those compounds for which we have health effects data because the myriad of compounds potentially responsible for the cancer and noncancer health effects observed with exposure to diesel exhaust have not been identified.

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<sup>9</sup> World Health Organization (1996) Diesel fuel and exhaust emissions: International program on chemical safety. World Health Organization, Geneva, Switzerland.

<sup>10</sup> Office of Environmental Health Hazard Assessment (1998) Health risk assessment for diesel exhaust, April 1998. California Environmental Protection Agency, Sacramento, CA.

<sup>11</sup>U.S. Department of Health and Human Services (2000) Ninth report on carcinogens. National Toxicology Program, Research Triangle Park, NC. [ehis.niehs.nih.gov/roc/toc9.html](http://ehis.niehs.nih.gov/roc/toc9.html).

- (6) EPA has overstated the emissions benefits of the proposal by relying on overly optimistic projections of the increase of diesel vehicle use. The Energy Information Administration (EIA) projections of VMT growth rates are lower, calling into question the reasonableness of EPA's estimates. EPA used EIA's Annual Energy Outlook to forecast highway diesel consumption, yet the difference in projected growth rates is significant. EPA has not adequately justified the growth projections of new vehicle HDDEs. Similarly, EPA's projected diesel production estimates are also out of line with EIA data. EPA overstated highway diesel demand and baseline emissions, and as a result, has overstated the emissions reductions benefits of the rulemaking.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 12-15

**Response to issue 3.3.3.(B)(6):** The emission inventories presented in this rule have been revised from the proposal based on updated modeling information for on-highway vehicles. The modeling incorporates the impact of all our current and proposed on-highway control programs, including the proposed 2007 heavy-duty engine standards. We base our on-highway inventory estimates on our assumptions of vehicle miles traveled (VMT) and emission factor estimates. We base our on-highway diesel fuel consumption estimates on our assumptions of vehicle miles traveled (VMT) and fuel economy.

With regard to VMT, the analysis uses updated heavy-duty vehicle VMT estimates. The revised VMT estimates were based on the Federal Highway Administration total VMT for all motor vehicles apportioned to the various vehicle categories. New VMT splits broken out by vehicle class and fuel type were developed in our efforts to create an updated version of MOBILE5. As a result, the VMT projections increased by 40 percent for heavy-duty diesel vehicles.

With regard to emission factors, we have updated the PM emission factors and HC emission factors. The new PM emission factors were also developed in our efforts to create an updated version of MOBILE5. The new HC emission factors incorporate revised estimates of the levels to which manufacturers will certify under the proposed 2007 heavy-duty engine standards.

With regard to fuel economy, historical fuel consumption estimates (1987-1996) come from a report performed to support the upcoming MOBILE6 model.<sup>12</sup> These historical fuel consumption estimates suggest that fuel economy is improving. For future fuel consumption estimates, we extrapolate the historical estimates into the future using a constant, linear improvement in terms of miles per gallon.

As a check on our diesel fuel consumption estimates, we used EIA's 1999 Annual Energy Outlook (AEO 1999) to project highway diesel fuel production for use in the U.S.

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<sup>12</sup> "Update Heavy-Duty Engine Emission Conversion Factors for MOBILE6: Analysis of Fuel Economy, Non-Engine Fuel Economy Improvements, and Fuel Densities," U.S. Environmental Protection Agency, EPA-420-P-98-014, May 1998.



According to AEO 1999, highway fuel consumption was projected to increase 1.5% per year. Commenters correctly point out that this is inconsistent with AEO 2000 which projects the lower growth rate of 1.0% per year. This change in growth rate projections is based on calculations using the gross domestic product index which are described in the EIA report. EIA is currently in the process of finishing AEO 2001 which is expected to show even higher diesel fuel growth projections than AEO 1999. Based on preliminary information<sup>13</sup>, we estimate that AEO 2001 will project an annual diesel consumption growth rate in the range of 1.6% to 1.9%. Based on these estimates, we believe that our fuel consumption projections are supported by the projections made by EIA.

Both we and EIA project similar improvements in fuel economy into the future. This means that both we and EIA project higher growth in VMT than in fuel consumption. As a result, we estimate that the AEO 2001 VMT growth estimates will be as high or higher than those we use in our emissions benefits calculations. Therefore, if anything, we may be conservative in our estimates of the emission benefits of the proposed 2007 heavy-duty engine standards.

**(7) Supports EMA comments on this issue.**

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 5  
Tosco (IV-D-41) p. 2

**Response to issue 3.3.3.(B)(7):** No response required

**3.4: Suggestions to improve the Draft Technical Support Document**

**(A) Commenter offers suggestions to improve the Draft Technical Supporting Document.**

- (1) EPA should discuss the need for chlorine to generate dioxin and document the ability to separate diesel PM from other forms of PM.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 7-8

**Response to issue 3.4(A)(1):** Dioxin formed during the combustion process requires a source of chlorine. Sources of chlorine in internal combustion engines include fuel, motor oil and intake air. The ability of investigators to use chemical source profiles to separate diesel PM from other sources of ambient PM has been demonstrated by 1) Fujita, E; Watson, JG; Chow, JC; et al. (1998) Northern Front Range Air Quality Study, volume C: source apportionment and simulation methods and evaluation. Prepared for Colorado State

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<sup>13</sup> "Early Release of the Annual Energy Outlook 2001," available at [www.eia.doe.gov/oaif/aeo/earlyrelease/index.html](http://www.eia.doe.gov/oaif/aeo/earlyrelease/index.html), Energy Information Administration, downloaded from EIA web site on December 12, 2000.

University, Cooperative Institute for Research in the Atmosphere, by Desert Research Institute, Reno, NV; 2) Schauer, JJ; Rogge, WF; Hildemann, LM; et al. (1996) Source apportionment of airborne particulate matter using organic compounds as tracers. Atmos Environ 30(22):3837-3855; and 3) Maricopa Association of Governments (1999) The 1999 Brown Cloud Project for the Maricopa Association of Governments Area, Final Report, December 1999.

- (2) EPA should: describe the oral slope factor; go into more detail in the discussion of the toxicity of acetaldehyde and formaldehyde.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 7-8

**Response to issue 3.4(A)(2):** Using the EPA 1986 Risk Assessment Guidelines, a carcinogen can be classified as a known, probable, or possible human carcinogen (Group A, B or C, respectively). A quantitative assessment is performed depending on the weight-of-evidence and the suitability of the available information regarding a relationship between the dose of a compound and the effect it causes (dose-response data). If suitable dose-response data are available, a quantitative assessment is calculated which can be presented in one or more of three ways. If the agent is active upon ingestion, then the slope of a dose-response curve generated from orally exposed animals or humans is calculated. This is referred to as the oral slope factor and is presented as risk per milligram of agent ingested per kilogram of body weight per day.

We disagree that there is a need to provide additional detail regarding the toxicity of acetaldehyde and formaldehyde. The toxicity of each of the MSATs was discussed in Chapter 3 in the Technical Support Document in enough detail to provide the essential information regarding the cancer and noncancer health effects of each compound. Additional information regarding the toxicity of each of these compounds can be found on EPA Integrated Risk Information System web page: <http://www.epa.gov/iris>.

- (3) EPA should: provide further support for diesel PM's contribution to emission inventories presented in Section 3, Chapter 3 of the Technical Support Document and clarify the discussion related to interpolating toxics emissions over the full range of fuel TOG emissions.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 7-8

**Response to issue 3.4(A)(3):** EPA provides further support for the contribution of diesel PM to emission inventories in Chapter 2 of the Health Assessment Document for Diesel Exhaust that can be found at: <http://www.epa.gov/ncea/dieslexh.htm>. Regarding the interpolation of

toxics emissions over the full range of fuel TOG emissions, EPA has data on toxic versus TOG emissions for normal emitters as a class versus high emitters as a class, obtained from the Complex Model database. However, data are inadequate to establish a relationship between toxics and TOG across the full range of TOG emissions. It is possible, as the commenter suggests, that emissions of photochemically reactive toxics will not increase linearly with TOG, but in the absence of adequate data, the Agency made a conservative assumption that the relationship was linear.

#### **ISSUE 4: CURRENT CONTROLS ON MSAT EMISSIONS**

##### **4.1: On-highway Controls**

**(A) Current vehicle and fuel controls will achieve a significant reduction in air toxics.**

- (1) Commenter notes that significant emissions will result from both Tier 2 and the HD diesel fuel rules, achieving a 75-95% reduction in air toxics emissions from mobile sources. Current controls are also estimated to reduce emissions of benzene and total VOCs by 35% and diesel PM by 23%.

Letters:

Association of International Automobile Manufacturers (IV-D-7) **p. 1**  
Engine Manufacturers Association (IV-D-39) **p. 6, att.**  
Engine Manufacturers Association (IV-F-1) **p. 11**

- (2) Efforts to reduce particulate and criteria pollutant emissions will also concurrently reduce air toxics. For example, in-use testing of particulate aftertreatment devices and BP Amoco ultra-low sulfur fuel in CA showed that not only was PM reduced to non-detectable levels, but hydrocarbon emissions were also reduced to near zero.

Letters:

Engine Manufacturers Association (IV-D-39) **p. 7, att.**  
Engine Manufacturers Association (IV-F-1) **p. 12**

#### **Response**

See response to issue 5(A).

##### **4.2: Off-highway Controls**

**(A) Commenter notes that EPA has in place a comprehensive and stringent program to control emissions from non-road sources, including increasingly restrictive Tier 2 and Tier 3 emission standards.**

- (1) For non-road sources, Phase I regulations for spark-ignited engines less than 25 horsepower reduced VOC emissions by 30%, and Phase 2 regulations will provide an additional 60-70% reductions over and above Phase I. Thus, the continuing successes achieved in reducing MSAT emissions from on-highway sources should be obtained from non-road sources as well, without the need for any additional regulatory programs.

Letters:

Engine Manufacturers Association (IV-D-39) **p. 7, att.**

**Response:** We agree that the emission control programs we have put in place for spark-ignited engines less than 25 horsepower will result in substantial MSAT reductions from that category. However, we do not agree that the reductions we anticipate from those engines make additional regulatory programs from nonroad sources unnecessary. As was stated in the proposal, there are a lot of information gaps in our understanding of nonroad MSAT emissions. These gaps need to be filled before we can make a determination on the need for additional nonroad regulatory controls. Further, spark-ignited engines less than 25 horsepower represent only a part of all nonroad engines, and we believe that other categories of nonroad engine types should be looked at to determine whether further nonroad controls are appropriate.

## ISSUE 5: VEHICLE-BASED CONTROLS

**(A) Commenter supports EPA's proposed conclusion not to impose further controls on motor vehicle engines to control HAPs from mobile sources.**

- (1) Existing and proposed motor vehicle regulations developed to reduce emissions of criteria pollutants will result in significant additional reductions of MSAT emissions in the future, which further obviates the need for any additional mobile source controls. Tier 2 and HDDE emissions standards will result in substantial reductions in emissions of HAPs. EPA has predicted that by 2020 these two regulations will reduce by 75% emissions of benzene, acetaldehyde, formaldehyde, and 1,3-butadiene. VOCs are expected to decrease by 76%, and diesel PM by 94% by 2020. (See related comments under Issue 4.)

Letters:

Association of International Automobile Manufacturers (IV-D-7) p. 1  
Engine Manufacturers Association (IV-D-39) p. 1, att.  
International Truck and Engine Corp. (IV-D-30) p. 1-2

**(B) EPA should evaluate several available options for MSAT vehicle standards.**

- (1) EPA should evaluate: fuel efficiency standards; an effective inspection and monitoring program; use of OBD; and regulation of non-road vehicles. Another commenter stated similarly that, to control benzene and 1,3-butadiene, EPA could introduce not only a more stringent fuel benzene cap, but also could require OBD and the use of emission controls in non-road engines. To control aldehydes, this commenter recommended that EPA: require existing trucks and buses be retrofitted with oxidation catalysts, extend the useful life of HDDE, and introduce OBD for HDDE. For non-road engines, EPA should apply the same standards listed above, as well as impose the 15 ppm sulfur cap, and introduce more stringent PM and HC engine standards.

Letters:

EarthJustice Legal Defense Fund (IV-D-32) p. 6  
NESCAUM (IV-D-10) p. 3, 13-15

**(C) Vigorous motor vehicle inspection and maintenance (I/M) programs are essential to any motor vehicle emission control strategy, and should be included as part of EPA's MSAT program.**

- (1) 10-30% of vehicles cause the majority of vehicle-related air pollution, as emissions control equipment deteriorates in older vehicles and as general wear and tear increase the rate of evaporative emissions. Enhanced I/M programs are the single most cost-effective air pollution control program at a

cost of only \$500 per ton of VOCs reduced. The commenter also noted that EPA has recognized the importance of enhanced I/M programs to ensure that the expected benefits of reducing tailpipe emission standards are realized.

Letters:

Environmental Systems Products (IV-D-25) p. 5, 16

Environmental Systems Products (IV-F-1) p. 53-57

**Response to issues 5(A), (B), and (C):** We proposed this rulemaking under Section 202(l) of the Act which directs us adopt regulations to control MSAT emissions under Sections 202(a)(1) and 211(c)(1) of the Act. Section 202(a)(1), in turn, authorizes us to set emission standards for new motor vehicles. In this context, we believe that our Tier 2 light-duty vehicle program and our recently proposed heavy-duty engine and vehicle standards will achieve the greatest degree of toxics control achievable under Section 202(l) at this time, and thus, fulfills the statutory requirements. We agree with the commenters that other approaches such as inspection and maintenance (I/M) may be able to reduce MSAT emissions from the in-use fleet. However, we did not propose any such in-use programs in this rulemaking. Nevertheless, we will continue to consider the potential for in-use programs to achieve MSAT reductions along with reductions in criteria pollutants.

While we are not establishing additional controls for MSAT emissions from new motor vehicles in this rulemaking, it is worth discussing some of these promising in-use approaches that may ultimately achieve further reductions in both MSAT and criteria pollutant emissions, especially with respect to in-use maintenance and tampering. To address the malmaintenance issue, EPA has established onboard diagnostic (OBD) requirements for vehicle manufacturers. These OBD provisions require that vehicle manufacturers install dashboard indicators that alert drivers to the need for emission-related maintenance, and electronic monitors that store codes in the vehicle's computer to assist mechanics in the diagnosis and repair of the malfunction. To address both the malmaintenance and tampering issues, EPA is working with states to develop and optimize I/M programs that monitor the emission performance of in-use vehicles. Recently we have been investigating how to best integrate these programs to use the OBD systems to identify the high-emitting vehicles, as well as the cause of the emission problem. For heavy-duty vehicles, I/M is more difficult because it is not as easy to test the larger vehicles. However, we recently established new OBD requirements for heavy-duty gasoline vehicles under 14,000 pounds GVWR, and expect to propose similar requirements for all other heavy-duty vehicles within the next year. As these heavy-duty OBD programs take effect, it will be much more practical to develop heavy-duty I/M programs that will achieve real emission reductions, especially for PM. With respect to retrofitting existing vehicles with improved emission control devices, we believe that it will be appropriate to address diesel retrofits after we have established the new requirements for in-use diesel fuel. Some of the exhaust aftertreatment technologies being considered in the recent heavy-duty diesel rule are especially appealing for use in retrofits because they can be fitted to an existing vehicle as add-on devices without major engine modifications. However, these technologies are not possible without the proposed changes to the fuel.

We agree with the commenters that it is important that our useful life values be long enough to adequately ensure that manufacturers design durable emission controls. That is

why we recently extended the minimum useful life for heavy heavy-duty engines from 290,000 miles to 435,000 (62 FR 54694 October 21, 1997). In that rulemaking we also created new provisions that would require an even longer useful life in some cases. The commenter did not provide data that would allow us to establish longer useful life values. Thus, while we may extend the minimum useful life values in the future we do not have a sufficient basis to do so at this time. It is also important to note that the length of the useful life is an important part of the standard setting process. If we were to change the minimum requirements for useful life, we would need to reconsider the feasibility of the associated emission standards.

Nonroad engines are not mentioned in Section 202(l) of the Act. Therefore we did not propose any new controls engines in this rulemaking. However, we will continue to consider the potential for MSAT control along with control of other pollutants in our rulemakings for nonroad engines under Section 213 of the Act. We have implemented emission standards for most nonroad engines and are in the process of setting standards for virtually all of the remaining uncontrolled classes of nonroad engines, as well as setting newer more stringent standards for classes already controlled. These standards will reduce MSAT emissions significantly from nonroad engines.

**(D) EPA should examine vehicle manufacturer's position on octane requirements in case those might be reduced through improved engine technology or more realistic engine fuel standards.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 4

**Response to issue 5(D):** As described in the previous response, we do not have the authority to specify the level of octane that a vehicle manufacturer can require solely to control MSAT emissions. In addition, since higher octane allows higher combustion ratios, lowering octane could increase fuel consumption.

**(E) Commenter writes to apprise EPA of innovative technology to control emissions and increase fuel economy.**

- (1) Technology exists to prevent emission of partially oxidized fuel during the first 90 seconds of vehicle operation (which is responsible for almost 90% of vehicle emissions). Commenter has enclosed two patents for this technology.

Letters:

Brooks, Timothy J. (IV-D-4) p. 2

**Response to issue 5(E):** See Response to issue 5(F) below.



**(F) Commenter is developing an insulated catalytic converter designed to significantly reduce hydrocarbon emissions, especially toxics, to reach low emissions.**

- (1) Commenter notes, however, that EPA needs to develop the test procedures to certify vehicles equipped with insulated converters. Commenter has attached test results from real-world conditions to demonstrate the effectiveness of such technology at reducing toxic emissions during cold-start. Commenter attached: MECA Demonstration Program of Advanced Emission Control Systems for Light-Duty Vehicles, Final Report, May 1999; and Burch and Biel, SULEV and "Off-Cycle" Emissions Benefits of a Vacuum-Insulated Catalytic Converter, SAE 1999. In follow-up comments, the commenter argued that adjustments to FTP-75 could be made to allow certification of this technology without invalidating the test.

Letters:

Benteler Automotive (IV-D-24) **p. all**  
Benteler Automotive (IV-G-4) **p. all**

**Response to issues 5(E) and (F):** We are aware of this innovative technology, and believe that it has the potential to reduce MSAT emissions. However, as noted in the Technical Support Document, we are uncertain whether it would be cost-effective. Thus we are not basing new tighter emission standards on it. Nevertheless, we do recognize that our existing test procedures are not appropriate to test vehicles equipped with these devices. We will consider making the necessary modifications to the procedures in the future.

**(G) EPA should use its section 202(l) authority to promote non-toxic and less toxic mobile source alternatives that will change the reliance on the internal combustion engine.**

- (1) This approach is warranted especially for this program given the long time horizon for achieving the full benefits of the program (not until 2020). By that time, many of these concerns can be addressed through increased use of fuel cell and similar technology.

Letters:

Clean Air Network, et al (IV-D-38) **p. 3**

**Response to issue 5(G):** See response to 5(A,B&C).

## ISSUE 6: FUEL STANDARDS

### 6.1: General Comments to Support Anti-Backsliding Program

#### (A) Supports proposal to reduce benzene levels in fuels.

- (1) Doing so will reduce levels of toxics emissions because benzene is a combustion precursor of xylene, toluene and ethylbenzene.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 5

**Response to 6.1(A)(1):** We agree with this comment.

- (2) Commenter provides no further supporting information or detailed analysis.

Letters:

Association of International Automobile Manufacturers (IV-D-7) p. 1

**Response to 6.1(A)(1):** No response required

### 6.2: General Comments Opposing Anti-Backsliding Program

[Note: Many refiner interests opposed the anti-backsliding program, and their general positions are summarized in Issue 1.2. Their specific objections to elements of the anti-backsliding program are detailed in the remaining subissues under Section 6.]

#### (A) The proposed rule will establish a regulatory program with multiple standards throughout the country for an otherwise identical product, complicating facility and company operations, regulatory enforcement, and the functioning of the fuel markets.

- (1) A single company will have different benzene content requirements for each facility, which also will be different for current production and further incremental production levels, and different from imported fuel levels. Not only does this create complicated operations for refiners, but also, if the market defaults to the tightest specification or the current average level, the rule will, de facto, be requiring a cleaner product, on average, than currently produced and will have deviated significantly from its "no backsliding" purpose and assumed "no cost" premise.

Letters:

U.S. Department of Energy (IV-G-2) p. 2

**Response to 6.2(A)(1):** The commenter provided only a qualitative justification for its allegation that our anti-backsliding program would unduly complicate operations and would make coordination of operations within and between companies increasingly difficult. In fact refineries already comply with fuel standards that are different for each facility under the anti-dumping program. Our anti-backsliding program would simply make these requirements more stringent for CG, and would extend the refinery-specific nature of the requirements to the RFG toxics requirement. The fact that we have changed to a toxic performance requirement instead of the benzene content standard we proposed, and have included a compliance margin, means that refiners not only have wide flexibility in how they meet their refinery-specific toxic performance standard, but they can also take advantage of the low sulfur standard of 30 ppm which begins phasing-in in 2004.

The market as a whole is unlikely to default to the tightest specification of all those applicable to refineries across the U.S. Our anti-backsliding program will be enforced only at the refinery gate, thus freeing downstream parties from the need to either comply with a current national average toxics performance level or to guarantee that all product conforms to the most stringent possible standard. As a result there is no reason to believe that our anti-backsliding program will result in further reductions in toxics emissions than are strictly required.

**(B) The imposition of a new specification for gasoline will reduce blending flexibility and limit refiners' ability to increase production or modify product slates in response to market changes.**

- (1) The use of historical baselines, which will also require refiners to build in an additional compliance margin, minimizes increased production opportunities. It also removes flexibility to blend, which reduces the ability to shift from CG to RFG, substitute oxygenates, make changes to achieve early desulfurization, or make similar changes.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 3-4

**Response to 6.2(B)(1):** Any new control on fuel places some limitations on a refiner's flexibility. In the case of the anti-backsliding program we are finalizing in today's rulemaking, however, we believe that the limitations are minimal and the corresponding costs negligible. The fact that we are finalizing a toxics performance requirement instead of the benzene content standard we proposed, and are including a compliance margin, maximizes refiners' ability to react to market changes while maintaining the overcompliance benefits exhibited in 1998 - 2000.

As described in Chapter 7 of our Technical Support Document, we do not believe that in general production volumes over and above a refiner's baseline (1998 - 2000) volume will result in significant increases in fuel benzene content. As a result it appears unlikely that our anti-backsliding program will limit a refiner's ability to increase future production volumes for either CG or RFG. In addition, the toxics performance requirement will allow refiners to take the low sulfur gasoline requirements, including early sulfur credit generation, into account when they comply with our anti-backsliding program, further maximizing their ability to

produce greater volumes of gasoline in the future, change the amount or type of oxygenate used, or make other changes to their operations.

Finally, as described in our response to issue 6.8, establishing separate toxics performance requirements for RFG and CG is an important element of our anti-backsliding program. Doing so ensures that the overcompliance benefits exhibited in RFG areas in 1998 - 2000 are not lost due to a shift in toxics performance between RFG and CG. Although this does somewhat limit refiners' flexibility, we believe that the other elements of our anti-backsliding program sufficiently maximize refiner's flexibility so that our program will not represent an onerous burden.

### **6.3: State Pre-emption**

#### **(A) States should not be allowed to impose any additional controls on air toxics.**

- (1) Differing State specifications would create "boutique" fuels and increase the nation's vulnerability to supply disruptions and market volatility; reduce flexibility; and contribute to logistical and pipeline problems. Some of these commenters also noted that State and local specifications increase the need for segregated batches, thus straining available refinery, pipeline, and terminal tankage along with other blending and distribution resources.

#### Letters:

American Petroleum Institute (IV-D-21) p. 5  
American Petroleum Institute (IV-F-1) p. 36  
Chevron (IV-D-34) p. 2  
Citgo Corporation (IV-D-5) p. 4  
ExxonMobil (IV-D-16) p. 4  
Koch Petroleum Group (IV-D-36) p. 2  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 2, 6  
Phillips Petroleum Company (IV-D-20) p. 3-4  
U.S. Department of Energy (IV-G-2) p. 3

**Response to issue 6.3(A)(1):** EPA recognizes the concerns expressed by the petroleum industry that a patchwork of different state fuel standards, sometimes referred to as "boutique" fuels, may increase the likelihood of disruptions in the fuel supply. In most situations, EPA believes that a uniform national program is the best way to protect public health and minimize disruption to the efficiency of the country's fuel distribution network. EPA's general expectation is that States will limit the adoption of State fuel programs to situations where local or unique circumstances warrant control.

Today's rule does not change the existing scope of preemption under section 211(c)(4)(A). By adopting a toxics performance standard that mirrors the existing toxics performance controls under the RFG and anti-dumping programs, we are not changing the characteristics or components subject to control under 211(c)(1). As a result, today's

rulemaking will not change the current ability, or the restrictions on the current ability, of States to adopt fuel controls to address local toxics concerns.

- (2) Commenters disagree that either of the two options in the preamble are permissible under the Act to avoid State preemption. EPA's first option would be to rescind the federal benzene standard if petitioned to do so by a State. This process is beyond the scope of section 211(c)(4). Under the CAA, States can only avoid preemption if the fuel proposal is necessary to achieve the NAAQS, and EPA cannot create other mechanisms to allow States to regulate benzene. It is also inconsistent with the purpose of section 211(c)(4) which is to avoid disruptions to the fuel distribution system. EPA's second option is to regulate toxics instead of benzene which EPA believes could enable States to specify benzene controls. However, State benzene controls are already preempted by RFG and antidumping regulations. Section 211(c)(4) of the CAA prohibits States from imposing any control "respecting" any fuel characteristic or component regulated by EPA. "Respecting" generally means "related to," and certainly a State benzene control is related to toxics control, particularly because benzene comprises 70% of toxics.

Letters:

American Petroleum Institute (IV-D-21) p. 3-5

American Petroleum Institute (IV-F-1) p. 36-37

ExxonMobil (IV-D-16) p. 2-4

Marathon Ashland Petroleum, LLC (IV-D-15) p. 6

National Petrochemical and Refiners Association (IV-D-33) p. 10-12

**Response to issue 6.3(A)(2):** Commenters argue that State controls on benzene are controls "respecting" toxics performance and are therefore preempted under 211(c)(4)(A) even in CG areas. Resolution of this issue would depend on how narrowly or broadly a court decides to interpret the scope of preemption in 211(c)(4)(A). Because EPA is not changing the scope of preemption as it existed before promulgation of this rule, EPA does not believe it is necessary to resolve commenters' argument at this time.

- (3) EPA has clearly stated in prior rules such as the RFG and anti-dumping rules, that federal rules should preempt State action to avoid an inefficient patchwork of potentially conflicting regulations. EPA should recommit to strict adherence with the CAA's preemption rule.

Letters:

American Petroleum Institute (IV-D-21) p. 5

Chevron (IV-D-34) p. 2

National Petrochemical and Refiners Association (IV-D-33) p. 10-12

Sunoco, Inc. (IV-D-23) p. 2

**Response to issue 6.3(A)(3):** We continue to believe that the characteristics and components subject to controls under our RFG regulations preempt non-identical State controls respecting those characteristics or components in RFG areas. Likewise, our anti-

dumping controls preempt State controls in CG areas respecting those characteristics or components. Today's rulemaking does not alter the preemptive effect of our RFG and anti-dumping rules, but instead mirrors these controls.

**(B) States should be allowed to regulate MSATs to protect their citizens from significant health risks.**

- (1) EPA has failed to fulfill its mandate to protect the public from risks posed by MSATs, and at the same time preempts States from taking action to protect their citizens. In the absence of an effective national MSAT program, EPA should set a framework that avoids State preemption and allows States to address these risks.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 1  
Consumer Policy Institute (IV-D-8) p. 3-4  
NESCAUM (IV-D-10) p. cvr. ltr.  
STAPPA, ALAPCO (IV-D-22) p. 3-4  
STAPPA, ALAPCO (IV-F-1) p. 46-48

**Response to issue 6.3(B)(1):** Today's rule adopts toxics performance standards that apply to the same characteristics and components as the existing RFG total toxics performance standard and CG exhaust toxics performance standard. As a result, today's standards do not change the scope of preemption that existed prior to promulgation of this rule. As discussed in the preamble to both the final and proposed rules, we believe a toxics performance standard may not cause States to be prohibited under section 211(c)(4)(A) from setting their own fuel benzene standard. At the same time, as discussed in the response to 6.3(A)(2), there is an argument that State controls on benzene are preempted as controls "respecting" toxics performance even in CG areas where there is no benzene standard. Because EPA is not changing the scope of preemption as it existed before promulgation of this rule, EPA does not believe it is necessary to resolve commenters' argument at this time.

- (2) States should have the option to develop programs tailored to address problems specific to that State.

Letters:

Bluewater Network (IV-D-29) p. 2  
Commonwealth of MA DEP (IV-D-13) p. 2  
Puget Sound Clean Air Agency (IV-D-27) p. 1  
STAPPA, ALAPCO (IV-D-22) p. 3-4

**Response to issue 6.3(B)(2):** Today's proposal does not change the scope of preemption and preserves whatever authority States currently have to address local problems.

**6.4: California Exemption**

**(A) Commenter concurs that California gasoline should be excluded from these requirements.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

ExxonMobil (IV-D-16) **p. 6**

**Response to 6.4(A)(1):** See response below 6.4(B)(1)

- (2) California's program for controlling gasoline benzene emissions is already more stringent than the federal RFG program and will become more stringent when CARB Phase 3 gasoline is introduced.

Letters:

American Petroleum Institute (IV-D-21) **p. 9**

British Petroleum (IV-D-19) **p. 2-3**

California Air Resources Board (IV-D-1) **p. 1-2**

Chevron (IV-D-34) **p. 1**

Kern Oil & Refining, Inc. (IV-D-31) **p. 5**

National Petrochemical and Refiners Association (IV-D-33) **p. 9**

Tosco (IV-D-41) **p. 4**

Western Independent Refiners Association (IV-D-40) **p. 3**

**Response to 6.4(A)(2):** See response below 6.4(B)(1)

- (3) California's gasoline should be exempted so long as the California standard is more stringent.

Letters:

Bluewater Network (IV-D-29) **p. 2**

**Response to 6.4(A)(3):** See response below 6.4(B)(1)

- (4) Commenter also agrees that the production of non-California RFG or CG by a California refinery should not be excluded from this rule. (But see Issue 6.11.6 for flexibility related to this non-CA production.)

Letters:

Tosco (IV-D-41) **p. 4**

**Response to 6.4(A)(4):** See response below 6.4(B)(1)

**(B) Commenter finds EPA's rationale for the California exemption to be lacking continuity with other portions of the proposal.**

- (1) EPA has shown that future California standards may be less stringent than those proposed by EPA for RFG. Under the current proposal, some non-California refiners will be held to benzene content levels far lower than those of California refiners.

Letters:

Phillips Petroleum Company (IV-D-20) p. 5

**Response to 6.4(A)(1), 6.4(A)(2), 6.4(A)(3), 6.4(A)(4), 6.4(B)(1):** In the NPRM, we proposed to exempt California gasoline from the proposed fuel benzene standard because it would be highly unlikely that California gasoline benzene levels would backslide, or increase, relative to the benzene levels of the proposed baseline period. We indicated that current California benzene levels and the upcoming more stringent California benzene requirements (Phase 3) would preclude benzene increases. As can be seen from the comments above, most commenters on this issue agreed with this approach, and most of those commenters agreed because of the increased stringency of the upcoming California Phase 3 gasoline rules. We believe the support of these commenters would extend to the final form of the rule, a toxics performance requirement.

The commenter at 6.4(B) questions EPA's rationale for exempting California gasoline because some non-California refineries (producing presumably non-California gasoline) would be held to a more strict standard (under the proposal, benzene levels lower than the average required of California refiners under California's rules). Under the proposed rule, it is possible that a producer of gasoline would have baseline period benzene levels of less than 0.7 percent by volume (the Phase 2 California average gasoline standard). However, both the proposed rule and today's final rule were anti-backsliding requirements; that is, the standard was relative to what each individual refinery produced during the baseline period. We are not providing an exemption to producers of California gasoline because of the magnitude of their average fuel benzene (in the case of the proposal) or their average toxics emissions performance (for our final rule). Rather, we are exempting California gasoline because we believe that the combination of the current California gasoline regulations and the upcoming more stringent California gasoline regulations effectively limit backsliding of California gasoline by producers of California gasoline.

## **6.5: Form of Standard**

### **6.5.1: Benzene Content Standard**

#### **(A) Commenter supports a standard for gasoline benzene content over one based on total toxics emissions.**

- (1) Because benzene accounts for about 67% of the total toxic mass emissions from mobile sources, benzene is a reasonable surrogate for other toxics. If a toxics standard were promulgated, refiners would likely focus on current benzene controls to reduce total toxics. Some commenters noted that a benzene content standard provided greater flexibility and would be simpler to administer than a toxics performance standard. One commenter also argued



that the simplicity of the benzene content standard made the 2002 start date manageable, which may not be the case for a toxics performance standard.

Letters:

American Petroleum Institute (IV-D-21) **p. 10**

British Petroleum (IV-D-18) **p. 1**

Marathon Ashland Petroleum, LLC (IV-D-14) **p. 7**

Phillips Petroleum Company (IV-D-20) **p. 4**

**Response to 6.5.1(A)(1):** We agree that benzene emissions account for a majority of total toxics emissions from gasoline-powered light-duty cars and trucks for those toxic compounds included in the Complex Model. This fact is one reason that we proposed controls on gasoline benzene content. See also Table IV.A-1 in the Technical Support Document. However, as stated in the NPRM, an anti-backsliding program that focuses on gasoline benzene content ignores emissions of other toxic compounds which could theoretically increase. In addition, as described more fully in our responses to Issue 6.13, a gasoline benzene content standard could actually result in non-negligible costs.

A gasoline benzene content standard does not offer refiners an advantage over a toxic emissions performance requirement. As the commenter correctly points out, refiners may very well focus on control of fuel benzene content even under a toxic performance requirement. However, under a toxic performance requirement refiners would also have the flexibility to make other changes to their fuel in order to meet the standard, providing opportunities for doing that which benefits each individual refinery the most.

We do not believe that a benzene content standard would be simpler to administer than a toxics performance requirement. Since CG currently has no controls for fuel benzene content, a benzene content standard for CG would actually represent a new compliance requirement for refiners, complicating the set of fuel standards that they must already comply with for gasoline. A toxics performance requirement, on the other hand, would simply replace the existing requirements for CG and RFG with a new numerical standard. See also our response to issue 6.5.3(A)(1). We also believe that the 2002 start date for our anti-backsliding program is no less manageable with a toxics performance requirements than with a benzene content standard, since refiners will have substantial control over toxics emissions through fuel benzene controls and can choose to focus on the latter if doing so is most beneficial for them. See also our responses under Issue 6.7.

- (2) Control on benzene versus toxics, without new downstream standards, would also be more appropriate within the current regulatory environment. As EPA notes, benzene is the primary element of the toxics control strategy in meeting RFG and anti-dumping requirements.

Letters:

National Petrochemical and Refiners Association (IV-D-33) **p. 4-5**

**Response to 6.5.1(A)(2):** Designing our anti-backsliding program to be consistent in form with the currently regulatory requirements does offer some advantages in terms of testing and reporting requirements as well as compliance familiarity. However, the toxic performance requirement we are finalizing today is actually a more direct extension of current regulatory requirements than the benzene content standard we proposed in the NPRM. Although fuel benzene content is controlled directly under the RFG program, it is not directly controlled under the anti-dumping program applicable to conventional gasoline (CG). In contrast, we have designed our anti-backsliding toxic performance requirement to be consistent with the total toxics standard for RFG, measured in percent from the statutory baseline, and the exhaust toxics standard for CG, measured in mg/mi.

### **6.5.2: Toxics performance requirement**

#### **(A) Supports a toxics performance standard instead of a gasoline benzene content standard.**

- (1) An exhaust toxics standard would allow a refiner more flexibility in meeting the compliance targets while meeting EPA's objectives. Because a reduction in gasoline sulfur results in a decrease in toxics, a toxics standard would eliminate the problems associated with an increase in benzene content resulting from the Tier 2 and diesel fuel sulfur standards.

Letters:

Placid Refining Company, LLC (IV-D-1) p. 3

**Response to 6.5.2(A)(1):** We agree with this comment. According to the refinery modeling discussed in Chapter 7 of our Technical Support Document, fuel benzene content would in fact increase concurrent with the low sulfur standard of 30 ppm which will begin phasing-in in 2004. Since a toxics performance requirement allows increases in toxics emissions due to increasing fuel benzene content to be offset with decreases in toxic emissions due to lower sulfur, refiners will in fact reap the benefits of low sulfur when complying with the toxics performance requirement we are finalizing today.

#### **(B) Supports continued exploration of a toxics compliance formula.**

- (1) In theory, this approach limits overall pollution while maintaining refiner flexibility, but this theory has not been analyzed thoroughly. To date, it appears EPA's moves on sulfur and benzene actually undermine the refiner's ability to adjust various components in order to manufacture a gasoline that meets EPA's requirements.

Letters:

Gary Williams Energy Corporation (IV-D-2) p. 4

**Response to 6.5.2(B)(1):** We agree that a toxics performance requirement places more direct controls on toxics emissions than a fuel benzene content standard while simultaneously providing refiners with the flexibility to comply with our anti-backsliding requirement in the way that most benefits their economic situation. This is one reason why we have decided to finalize a toxic performance requirement instead of the benzene content standard we proposed. In so doing, the toxics requirements already in place in the RFG and anti-dumping programs will effectively become more stringent (on average across the U.S.) and there will be no new controls on fuel benzene content in this rulemaking that might limit a refiner's flexibility to meet the toxics requirements for RFG and CG.

We believe that the refinery modeling described in Chapter 7 of the Technical Support Document sufficiently analyzed the impacts of a toxics performance requirement on average refiner flexibility. That modeling allowed us to conclude that a toxics performance requirement would be more appropriate for our anti-backsliding program than the proposed benzene content standard, due in part to the potentially non-negligible costs associated with a benzene content standard. The modeling also indicated that toxics emissions would likely decrease after the low sulfur gasoline standard of 30 ppm goes into effect, suggesting that the 30 ppm sulfur standard will not impose an additional burden on refiners in terms of compliance with the RFG and anti-dumping toxics requirements. Note that the low sulfur standard of 30 ppm was implemented only to enable the next generation of light-duty aftertreatment to operate effectively.

**(C) IF EPA promulgates a TES in the future, then EPA must at that time retire the BCS.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Phillips Petroleum Company (IV-D-20) p. 4-5

**Response to 6.5.2(C)(1):** The comment implies that the combination of a toxics performance requirement and a benzene content standard at any point in the future would be redundant and would represent an unfounded burden upon refiners. Since we are not finalizing the benzene content standard, there will be no need to retire it in the future should we determine, as part of our Technical Analysis Plan, that additional controls on toxics are warranted sometime after 2003.

**(D) Supports a regional approach to toxics, rather than refinery-by-refinery for RFG.**

- (1) If EPA decides to use a baseline toxics performance standard approach, EPA should establish a regional toxics performance standard. The regional standard would be translated appropriately back to the refinery gate for refineries supplying that region. This approach, in conjunction with a regional refiner trading program, would minimize the overall cost of the program, facilitate its earlier implementation, and have less adverse impact on gasoline

supply. Another commenter recommended that this approach also should be coupled with no further controls on CG and the elimination of the oxygenation mandate.

Letters:

American Petroleum Institute (IV-D-21) p. 7

ExxonMobil (IV-D-15) p. 8

- (2) Commenter provided no further supporting information or detailed analysis.

Letters:

Marathon Ashland Petroleum, LLC (IV-D-14) p. 5

**Response to 6.5.2(D)(1) and (D)(2):** There are several ways in which we could have set and applied the baseline for our anti-backsliding program, all of which would in theory maintain the same toxics performance levels for the U.S. as a whole. These include a single nationwide baseline applicable to all refineries, regional baselines applicable to all refineries within each region, and refinery-by-refinery baseline. In the absence of credit trading, however, a nationwide or regional approach would mean that some refineries would be over the applicable toxics baseline and some would be under. Those that were over the baseline would be forced to change their operations or install new equipment in order to comply with the nationwide or regional baseline. As a result the national average toxics emissions would fall below the level strictly required by an anti-backsliding program, with some refiners incurring non-negligible costs in the process. We do not consider these costs and the associated emission reductions to be warranted in the short term.

Inclusion of credit trading under a nationwide or regional program might minimize or even eliminate the additional toxics emission reductions that would otherwise result. However, the costs to many refiners could continue to be significant even though toxics emissions are no better than they were in 1998 - 2000 for the nation as a whole. Under credit trading, refiners that overcomply with the applicable toxics performance requirement would sell credits to those refiners who undercomply. According to economic theory, refiners that undercomply would be willing to pay an amount for those credits which is equal to, but no greater than, the cost of meeting the toxics performance requirement on their own. The result is that the economic burden on many refiners who undercomply with a nationwide or regional standard could be the same whether or not credit trading is allowed. For further discussion of credit trading, see our responses under Issue 6.11.3.

As part of its justification for a regional program, one refiner commented that the significant overcompliance in toxics emissions exhibited in 1998 - 2000 is predominately due to those refineries that overcomplied on fuel benzene content. We agree that the majority of toxics overcompliance is due to fuel benzene content overcompliance. However, it would appear that a regional program, with or without credit trading, would actually increase costs because the economic incentive to reduce fuel benzene content would continue to be refinery-specific. Refineries for which benzene reduction was not profitable in 1998 - 2000 would likely undercomply with a regional standard in the future, and so would need to either buy credits or install new equipment. Thus it appears that a refinery-by-refinery set of toxic performance

baselines is the most appropriate means for minimizing costs while simultaneously preserving the overcompliance toxics benefits exhibited in 1998 - 2000.

### **6.5.3: Benzene Emissions Standard**

#### **(A) Opposes benzene emissions standard.**

- (1) A BES offers no simplicity over a toxics emissions performance standard and is not a meaningful alternative at this time.

Letters:

ExxonMobil (IV-D-15) p. 8

Phillips Petroleum Company (IV-D-20) p. 5

**Response to 6.5.3(A)(1):** Both the benzene emissions standard on which we took comment and the toxic performance requirement we are finalizing today are functions of several fuel properties, most notably fuel benzene content. As a result, the limitations that they impose on the formulation of gasoline are largely overlapping. Therefore, from the perspective of a refiner complying with our anti-backsliding program, a benzene emissions standard would be no simpler to administer or manage than a toxics performance requirement.

#### **(B) Supports a benzene emissions standard over a benzene content standard.**

- (1) Benzene in fuel is an imperfect determinant of vehicle benzene emissions because the benzene present in vehicle fuels is largely combusted. Fuel sulfur levels and Reid Vapor Pressure can also affect vehicle benzene emissions. A successful program to limit ambient benzene concentrations will have to address total vehicle benzene emissions.

Letters:

U.S. Department of Energy (IV-G-2) p. 1-2

**Response to 6.5.3(B)(1):** By far the fuel property that has the largest impact on benzene emissions is fuel benzene content. According to the Complex Model, our current best indicator of the effects of fuel properties on toxics emissions, the effect of fuel benzene content on benzene emissions is several times greater than the fuel property with the next highest impact, aromatics. For this reason it was appropriate for us to consider fuel benzene content in the NPRM as a means for controlling benzene emissions. However, the commenter is correct in that other fuel properties can have significant effects on toxics emissions, and that the most direct and certain means of limiting ambient concentrations of toxic pollutants is to place direct controls on tailpipe emissions. This is one reason that we have decided to finalize a toxics performance requirement instead of a benzene content standard.

As described in the Technical Support Document, we do not believe that a focus only on benzene emissions provides the greatest degree of protection against backsliding with

respect to 1998 - 2000 toxic emission levels. It is true that by setting controls on benzene emissions one has the greatest possible degree of control over ambient benzene concentrations. However in this case emissions of other toxic compounds could theoretically increase without any limitations other than the current RFG and anti-dumping standards with which refiners are significantly overcomplying. We have therefore concluded that a toxics performance requirement is a better means for maintaining the overcompliance exhibited in 1998 - 2000 than a simple benzene emissions standard.

#### **6.5.4: National Average-Based vs. Refinery-Based Standards**

##### **(A) Commenter expressed support for a nationwide standard for CG and RFG.**

- (1) A nationwide standard would prevent the cleaner refinery from being penalized for early reductions and would encourage future voluntary reductions. The limit could be set at 1998-99 industry average levels. One commenter added that overall benzene levels would not suffer because refiners over the average would have to reduce their levels.

Letters:

Amerada Hess Corporation (IV-D-14) p. 3, 7-8  
Citgo Corporation (IV-D-5) p. 1, 3

**Response to issue 6.5.4(A)(1):** While EPA may consider such a program in the future, the current rule is designed to avoid increases in total toxic emissions from gasoline while imposing the least cost on the refining industry. The approach ensures that the control is achievable in the near term. EPA's modeling predicts that even after RFG II and Tier 2 low sulfur gasoline, the typical refinery in PADDs I and III will not incur more than negligible costs. The regulations also contain provisions for baseline adjustments and temporary relief in the event of unforeseen circumstances.

EPA does not believe the refinery-specific anti-backsliding approach unfairly penalizes early reductions. Some refineries have found it economically advantageous to overcomply with the toxics performance standard for RFG and, to a lesser extent, CG. In many cases, the financial incentive of overcomply is due to proximity to a market for chemical benzene. Since each refinery is unique in terms of construction and location, any single standard will create varying degrees of challenges. In this case, those refineries that have taken advantage of a local benzene market will find themselves without the significant cushion of overcompliance that they had previously enjoyed. If EPA establishes a nationwide standard, those refineries not located near a petrochemical market will be "penalized" in a different way.

- (2) A nationwide baseline set at a level just higher than the 1998-99 industry average baseline would enable refiners to remain in compliance despite uncertainties in equipment operation, crude supply, market requirements, weather, and other variables.

Letters:

Koch Petroleum Group (IV-D-36) p. 1

**Response to issue 6.5.4(A)(2):** The Agency has established a compliance margin for the final rule for RFG and CG and expanded the baseline period from two year to three years. These changes should allow refineries to remain in compliance despite the typically fluctuations in equipment operation, crude supply, market requirements, weather, and other variables.

- (3) Commenter noted this preference especially for CG.

Letters:

Phillips Petroleum Company (IV-D-20) p. 2-3

**Response to issue 6.5.4(A)(3):** See response to issue 6.5.4 (A)(2).

**(B) Supports a refinery-based program.**

- (1) Refinery-based anti-backsliding averages are important for consistency, simplicity, flexibility, and quicker implementation. More complicated programs would necessitate implementation delays. The commenter notes that the current RFG toxic and conventional anti-dumping exhaust toxic averaging control programs are refinery-based and do not impose control requirements on downstream entities.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 4-5

**Response to issue 6.5.4(B)(1):** The Agency agrees with the comment.

**6.5.5: Alternative Standards**

**(A) EPA should establish a minimum benzene level or floor.**

- (1) Those refiners which extract almost all the benzene from their reformat have little flexibility to control benzene to very low baseline levels. Any unexpected spike in benzene levels would make it difficult to compensate with future operations because the refinery's normal operation is maximizing benzene extraction. Establishing a floor would allow EPA to maintain the basic structure of the proposal while not adversely affecting the cleanest refiners. This approach also could provide incentives to produce additional RFG volumes. Also, the use of a floor should not affect future benzene levels because refiners that invested in extraction facilities will not intentionally increase benzene levels.

Letters:

Citgo Corporation (IV-D-5) p. 1-4

National Petrochemical and Refiners Association (IV-D-33) p. 6

**Response to issue 6.5.5(A)(1):** EPA has made significant changes from proposal to final in order to create greater flexibility for refineries. Changes which have enhanced flexibility include: increasing the baseline period from two to three years; shifting to a toxics performance requirement; adding a compliance margin; and allowing for credit and deficit carryforward. Given these substantial flexibilities provided in the final rule, the Agency does not agree with the commenter that establishing a minimum floor for those refineries that have established the lowest baselines is necessary.

- (2) Commenters recommended that a reasonable floor would be a minimum of 0.7 vol.% for CG and either 0.5 or 0.65 vol.% for RFG.

Letters:

Citgo Corporation (IV-D-5) p. 1-4

National Petrochemical and Refiners Association (IV-D-33) p. 6

**Response to issue 6.5.5(A)(2):** See response to issue 6.5.5(A)(1).

**(B) Refiners that produced benzene for the chemicals market during the baseline period should be allowed to increase their baselines to an established minimum.**

- (1) Doing so would avoid the economic hardship which would accompany a reduction in the benzene chemicals market.

Letters:

Tosco (IV-D-41) p. 3

**Response to issue 6.5.5(B)(1):** See response to comment 6.5.5(A)(1).

**(C) EPA should establish a standard that will provide maximum public health and environmental protection and full flexibility for state and local agencies that wish to go beyond the federal program.**

- (1) Whether this is accomplished through a toxics performance standard, another of the identified options, or an approach that was not presented in the EPA proposal, EPA should make health and environmental protection and state/local flexibility very high priorities in developing the rule.

Letters:

STAPPA, ALAPCO (IV-D-22) p. 4

**Response to issue 6.5.5(C)(1):** The final rule was designed to capture the greatest amount of overcompliance while imposing less costs on industry than the proposed benzene content standard. The final form of the standard does not alter the legal status quo in terms of a



state's ability to establish more stringent controls on components of conventional gasoline that produce toxic emissions.

**6.6: Ability to Meet Baseline Levels at No Cost**

**(A) One reason the proposal is too stringent and will impose costs on refiners is because refiners will need to maintain a compliance cushion so that unanticipated exceedances do not jeopardize compliance.**

- (1) Reducing the compliance cap would force refiners to further reduce the benzene content to maintain a "compliance comfort zone." One commenter suggests that, at a minimum, EPA should consider a 20-25% compliance cushion for those refiners with very low baselines. Another commenter suggests a 10% compliance margin. Another commenter stated that, based on its operating experience, annual benzene levels can vary by 10-25%. So, EPA should consider a compliance margin in that range, with a maximum limit for RFG. The commenter argued that this approach would provide necessary flexibility to refiners while minimizing any air quality impact.

Letters:

American Petroleum Institute (IV-D-21) p. 2  
American Petroleum Institute (IV-F-1) p. 35  
Citgo Corporation (IV-D-5) p. 3  
ExxonMobil (IV-D-16) p. 2, 5  
Gary Williams Energy Corporation (IV-D-3) p. 1-2  
Koch Petroleum Group (IV-D-36) p. 1  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 4-5  
Murphy Oil Corporation (IV-D-17) p. 4  
Phillips Petroleum Company (IV-D-20) p. 3, A-2, A-3  
Sunoco, Inc. (IV-D-23) p. 2

**Response to 6.6(A)(1):** We agree that, in the process of complying with a given standard, refiners will generally aim for some level below that standard to ensure compliance. In the context of this final rulemaking, we recognize that requiring refineries to be no higher than their average 1998 - 2000 production may actually cause refineries to reduce the toxic performance of their gasoline below the applicable standard resulting in costs to the industry that are not reasonable in the short term. It is for this reason that we have decided to include a compliance margin in the toxics performance requirement we establish for every refinery.

To determine the average compliance margin necessary to ensure that refineries will not need to overcomply with the new anti-backsliding requirement, we analyzed batch data from a random selection of refineries. The analysis allowed us calculate the magnitude of the compliance margin to apply to each refinery's anti-backsliding baseline that would forestall a refinery's need to reduce toxic emissions further than required under our anti-backsliding program. A detailed discussion of the calculation of compliance margins is given in Chapter 7 of the Technical Support Document.

Our analysis of toxic performances indicates that year-to-year variations in the national average are very small. As a result, we have not incorporated the effects of year-to-year variations in the determination of the compliance margin. However, despite the fact that the national average toxic performance appears quite stable from year to year, variations can be more substantial for individual refineries. This is one reason that we have expanded our baseline period from two to three years. The three year baseline period of 1998 - 2000 should reduce the impacts of any year-to-year variations for individual refineries.

- (2) Small refiners will have to adopt measures to over-comply in order to ensure compliance consistently and risk free with the new standards for 2002. Otherwise, they may not be able to avoid the significant penalties associated with a violation.

Letters:

U.S. Small Business Administration (IV-D-26) p. 2

**Response to 6.6(A)(2):** There is no reason to think that small refiners need a larger compliance margin than large refiners, since the distribution of toxic performance levels in a given year is not dependent upon the size of the refinery. As a result, we believe that the compliance margin that we have generated and will apply to the toxic performance requirement for every refinery will be sufficient for small refiners as well as large.

- (3) Refiners must provide for a level of safety margin in meeting any regulatory requirement. Some allowance must be provided first for day-to-day test variability and reproducibility. For a longer-term program based on an annual or longer compliance period, over-compliance must be provided throughout a major portion of the period to be sure that the average can be met in the event of unforeseen market, operating or other situations occurring at the end of the compliance period. The appropriate level of compliance margin will depend on a number of factors, i.e., testing reproducibility, benzene extraction reliability, market trends, etc., but in no event should exceed 0.95 vol.%. The commenter argues that the failure to provide a compliance cushion could lead to unintended consequences, such as increased use of MTBE or reduced production of low baseline RFG with higher baseline CG.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 5-6

**Response to 6.6(A)(3):** We agree that a compliance margin is appropriate for the toxics performance requirement we are finalizing today. See response to issue 6.6(A)(1). However, we do not believe that our annual averaging program is highly sensitive to day-to-day test variability. Although test variability can be quite important when the standard in question is established on a per-gallon basis, annual averaging has the benefit of substantially muting the impacts of test variability on compliance; over many batches, test variability is just as likely to produce results that are too low as results that are too high. Still, test measurement variability combines with blending tolerances, contamination, changes in

crude composition, and other sources of variability in such a way that refiners cannot maintain perfect control over the toxic performance levels of every one of their batches all the time. The compliance margin that we are including in our anti-backsliding program is intended to account for the combined effect of all this variability, and will also protect against potential increases in the use of oxygenates or pressure to change relative production volumes of RFG and CG. It should be noted that the deficit carryover provision in our final rulemaking will also provide refiners the flexibility they need to comply with their baseline at negligible cost, even in those instances where unforeseen market, operating or other situations occur at the end of the compliance period.

**(B) Another reason that the proposal is too stringent is because refinery compliance is dependent in large part on uncontrollable operating or market circumstances that may change and interfere with refiners' ability to maintain 1998-99 baseline levels without additional controls.**

- (1) Overcompliance in 1998-99 is partially explained by unusual market conditions that resulted in abnormally low benzene levels. One refiner provides data to show that levels were abnormally low that year as part of an operational strategy to manufacture high levels of premium gasoline. Because of these types of situations, refiners will not necessarily be able to maintain the baseline levels if operating circumstances, raw material supply, or product demands fluctuate.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 2  
Silver Eagle Refining, Inc. (IV-D-18) p. 1

**Response to 6.6(B)(1):** Since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of fuel. But, as discussed in Chapter 7.A.3 of the Technical Support Document, we find no reason to expect the market for benzene to change. In fact, future forecasts suggest that benzene consumption in the U.S. will increase over the next several years.

Nonetheless, we are allowing a refiner to petition EPA for a permanent adjustment of its toxics baseline. The refiner must demonstrate how circumstances during 1998-2000 materially affected the baseline toxics value determination. Because we believe that the changes made to this final rule - deficit and credit carryforward, compliance margin, inclusion of a third baseline year - sufficiently consider and minimize the potential compliance burden for those refiners that experience unusual refinery operational issues, we expect that the number of baseline adjustments will be small.

- (2) Refiners with very low benzene levels during the baseline period are now faced with no operating flexibility under the proposed rule. One commenter noted that refiners with significant benzene extraction (because of favorable market conditions) can only achieve further reductions from reformat and catalytic cracker streams, the science of which is not well understood.

Furthermore, one commenter noted that if the benzene market shrinks, refiners that significantly overcomplied with the benzene standards due to strong benzene extraction and sales may not be able to meet the very low benzene baseline in the future. One commenter provided detailed summary of operations at two refineries to document these concerns.

Letters:

American Petroleum Institute (IV-D-21) p. 3  
Citgo Corporation (IV-D-5) p. 2-3  
ExxonMobil (IV-D-16) p. 5  
Sunoco, Inc. (IV-D-23) p. 1  
Tosco (IV-D-41) p. 3  
U.S. Department of Energy (IV-G-2) p. 2-3

**Response to 6.6(B)(2):** Since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of the fuel. With regard to refineries that achieved low toxics emissions levels due to benzene extraction, we do not believe there is any basis for expecting the benzene market to change in such a way that warrants setting a minimum toxics performance level. In fact, projections of the benzene market suggest continued growth (see TSD, Chapter 7.A.3). Nevertheless, as we explain in the response to 6.6(B)(1), we are allowing a refiner to petition EPA for a permanent adjustment of its toxics baseline.

In addition, because we are promulgating a toxics performance requirement, which is a function of all of the fuel parameters evaluated by the Complex Model, and not a single fuel parameter requirement (like a fuel benzene content requirement), it is not clear how we would set such a minimum toxics emission level to account for changes in the petrochemical market. We would have to consider each of the eight Complex Model fuel parameters separately, and this would be complicated by the fact that the fuel parameters' effects on toxics emissions vary considerably. Nonetheless, we can address the issue raised by the commenter since it is relevant, in a broad sense, to the baseline setting process.

We do realize that even for a toxics anti-backsliding program, unusual situations may happen which can significantly affect refinery operations, and which could cause the refinery to be out of compliance with its requirement. To this end, we proposed and are finalizing a one year deficit carryforward. This will allow a refinery to exceed its anti-backsliding toxics requirement for one year. In the next year, it must make up the deficit as well as be in compliance for that year. Additionally, though not proposed, we are also including a one year credit carryforward. Under this provision, a refinery producing gasoline that is cleaner than required by its toxics anti-backsliding requirement may use the overcompliance to cover any deficit in the following year.

- (3) To overcome variations in observations of benzene, refiners might have to change their crude oil selection decisions, sell components, or change processing, all of which would have large financial impact. The proposed rule does not consider these variations and the costs refiners will incur to overcome the variations to meet a historic benzene level.

Letters:

Sunoco, Inc. (IV-D-23) p. 2

**Response to 6.6(B)(3):** In today's final rule we have switched to a toxics performance requirement which provides refineries with additional flexibility to account for variation in the benzene content of fuel. Moreover, in determining the compliance margin of 2.5 mg/mi for CG and 0.7 percent for RFG, we took batch variation into account by analyzing several batch reports from several refiners which varied in terms of annual gasoline volume, geographic location, and whether it produced CG only or CG and RFG. Finally, our analysis of refinery reports submitted for the years 1997 and 1999 showed no significant difference in benzene levels between these years, or for either type of gasoline, RFG or conventional. In any event, we have added the flexibility of deficit/credit carryforward to allow refiners to address unexpected changes at the end of the compliance period.

- (4) The demand for gasoline is estimated to grow by at least one percent over the next twenty years. To meet this increased demand, refiners will likely have to increase reformate throughput, which would reduce octane. To improve octane, refiners likely will need to increase the benzene content of gasoline.

Letters:

U.S. Small Business Administration (IV-D-26) p. 3  
U.S. Department of Energy (IV-G-2) p. att

**Response to 6.6(B)(4):** If a refinery were to increase reformate throughput in order to help meet a demand for gasoline production, we agree that the octane of the reformate product would be decreased. However, we also believe the benzene produced in the reformate would decrease. In general, as throughput in the reformate is increased, the benzene formed in the reformate decreases. Since reformate is the gasoline refinery stream that contains the most benzene, if reformate throughput is increased to meet a demand for more gasoline production at a refinery, we do not believe that the benzene content of gasoline would necessarily increase. Furthermore, since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of the fuel. Finally, because we have decided not to control incremental volumes in today's final rule, refinery concerns regarding increased gasoline production due to increased demand in future years is no longer a concern.

- (5) It is highly unlikely that, given the normal variability in refining and product markets, refining operations or all product quantities will remain stable over a period of years. As an example, one commenter provides a list of changes that have occurred recently in the industry. Another commenter noted that increasing RFG production or reduced volatility also could lead to the need to replace octane and potentially increase benzene levels.

Letters:

American Petroleum Institute (IV-D-21) **p. 2-3**  
American Petroleum Institute (IV-F-1) **p. 35**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 4-5**  
National Petrochemical and Refiners Association (IV-D-33) **p. 3**  
U.S. Small Business Administration (IV-D-26) **p. 3**

**Response to 6.6(B)(5):** Today's final rule accounts for variability in a number of ways. The rule finalizes toxics emission performance requirements for gasoline that require, beginning with calendar year 2002, that a refinery's or importer's annual average total toxics emission performance for its RFG not exceed its 1998-2000 baseline RFG total toxics emissions performance. Likewise for CG, this rule will require that the exhaust toxics emissions performance of a refinery's or importer's CG not exceed its 1998-2000 baseline exhaust toxics emissions performance for CG. This baseline period is one year longer than proposed and provides baseline values that are truer to a refiner's normal operating mode. By including the one additional year (2000) into the baseline, we are including the beginning of the Phase II RFG program into the baseline which improves the baseline because it adds data to the baseline determination which is most recently available. Including 2000 also helps to further offset the effects of unit turnarounds by extending the baseline to a 3-year average. We believe that the 1998-2000 baseline sufficiently accounts for changes in refinery operations or product. Furthermore, since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of the fuel.

We do realize that even for a toxics anti-backsliding program, unusual situations may happen which can significantly affect refinery operations, and which could cause the refinery to be out of compliance with its requirement. To this end, we proposed and are finalizing a one-year deficit carryforward. This will allow a refinery to exceed its anti-backsliding toxics requirement for one year. In the next year, it must make up the deficit as well as be in compliance for that year. Additionally, though not proposed, we are also including a one-year credit carryforward. Under this provision, a refinery producing gasoline that is cleaner than required by its toxics anti-backsliding requirement may use the overcompliance to cover any deficit in the following year.

Finally, we are providing an additional flexibility in the form of a baseline adjustment for those refiners that can demonstrate how circumstances during 1998-2000 materially affected the baseline toxics value determination. Thus we have provided refiners with compliance flexibility in several forms.

We believe the changes described above will adequately address commenters' concerns regarding variability. Our analysis projects that even with future controls and increases in production the cost of meeting a toxics performance requirement will be negligible. For a more detailed discussion of costs see Chapter 7.C of the Technical Support Document, and for a more detailed discussion on increases in production (i.e., incremental volumes) see Chapter 7.D.

**(C) The proposed rule is unfair because it penalizes refiners that over-complied.**

- (1) The proposal penalizes refiners that have overcomplied by forcing them to maintain that level of performance. If cleaner refineries have a lower limit than dirtier ones, the marketplace will penalize them for being cleaner. Overcompliance should be rewarded, not punished. Some of these commenters argued that could discourage sources from voluntarily going beyond compliance under other programs for fear that EPA would use the voluntary efforts to justify tighter standards.

Letters:

American Petroleum Institute (IV-D-21) **p. 3, 9**  
Citgo Corporation (IV-D-5) **p. 3**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 5**  
Phillips Petroleum Company (IV-D-20) **p. 2-3**  
Sunoco, Inc. (IV-D-23) **p. 1**  
U.S. Department of Energy (IV-G-2) **p. 2-3**

- (2) EPA should not penalize refiners for voluntary efforts to reduce emissions. Commenter offers detailed comment that because its St. Croix refinery voluntarily participated in the EPA's 33/50 Program during the proposed baseline period, it believes that it is inappropriate to penalize refiners for reductions in benzene achieved by these efforts.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 1, 6-8**

**Response to 6.6(C)(1) and (C)(2):** The purpose of today's action is to prevent future increases above the current level of air toxics emissions derived from existing fuel properties. This toxics anti-backsliding measure will ensure that mass emission rates (in milligrams per mile, mg/mi) of air toxics from motor vehicles do not increase while the Agency gathers additional information for a forthcoming rulemaking in 2003-2004.

The Clean Air Act identified five air toxics in the federal reformulated gasoline program: benzene, 1,3-butadiene, formaldehyde, acetaldehyde, and POM. The RFG program established a toxics emission performance standard for RFG, and an anti-backsliding toxics standard for conventional gasoline based on 1990 baseline toxics levels for each refinery. On average, refiners have overcomplied with the toxics emissions performance standards for both RFG and CG. Overcompliance of RFG standards resulted in substantial toxics reductions beyond what was required by law. We have estimated reductions in the total toxics inventories due to overcompliance of 70 thousand tons in 1996 and 40 thousand tons in 2007 (see TSD). Today's program will ensure that these benefits are maintained for the foreseeable future. This is important because without these anti-backsliding requirements, refiners could increase the toxic emissions from their fuels up to existing legal limits. This could happen if refineries increase benzene or aromatics to increase octane levels, or if they change their refinery operations in reaction to unforeseen future circumstances.

It is our belief that, in general (and absent refinery disasters or other similar, critical events), during the baseline period, every refinery was operating to maximize profits, considering its crude slate, operating units, product mix, marketing plan, etc. "Cleaner" refiners must have found it profitable to be overcomplying compared to "dirtier" refiners or they would have already been penalized by the market from being cleaner. Nevertheless, to be fair, we are providing an additional flexibility in the form of a baseline adjustment for those refiners that can demonstrate how circumstances during 1998-2000 materially affected the baseline toxics value determination.

**(D) Commenters note that the effect of the MTBE, Tier 2 and HDDE rules will result in an increase in the benzene content of fuels and thus refiners will not be able to maintain baseline levels at no cost.**

- (1) Because the likely future reductions of MTBE and other oxygenates in gasoline will result in reduced volume dilution and/or reduced octane, refiners may need to change operations to offset these impacts. Those changes, such as increased reformer severity, likely will increase benzene content. Therefore, EPA must consider the effects of oxygenate reduction on any additional benzene control program. Some of these commenters argued that EPA needs to use a "systems approach" to evaluate the relationship of oxygenate reductions with benzene levels. Another commenter also noted that ethanol can only partially compensate for the loss of octane from the MTBE phase-out. The higher oxygen content and volatility of ethanol precludes it from being blended at the same volume levels as MTBE.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 4, 9**  
American Petroleum Institute (IV-D-21) **p. 2**  
Citgo Corporation (IV-D-5) **p. 3**  
ExxonMobil (IV-D-16) **p. 2, 5**  
Kern Oil & Refining, Inc. (IV-D-31) **p. 2-4**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 5**  
Murphy Oil Corporation (IV-D-17) **p. 3-4**  
U.S. Small Business Administration (IV-D-26) **p. 3**  
U.S. Department of Energy (IV-G-2) **p. att**  
Western Independent Refiners Association (IV-D-40) **p. 2-3**

**Response to 6.6(D)(1):** We did not conduct a detailed analysis of potential MTBE controls because we are still currently working on our MTBE proposal and it would be premature to consider the possible impacts from this effort. The primary mechanism for controlling MTBE emissions would be to limit the use of MTBE in gasoline, and any toxics emissions impacts will be addressed in a separate rulemaking under the Toxic Substances Control Act (TSCA). This rule will be considering whether to phase-down or phase-out MTBE use. We believe it is reasonable to defer consideration of MTBE controls to that rulemaking, which will address the important concerns of preserving water resources, as well as any air pollution impacts, including today's toxics performance requirement. In addition, the EPA and the United States



Department of Agriculture jointly announced, on March, 2000, the Administration's legislative principles for protecting drinking water supplies, preserving clean air benefit and promoting renewable fuels and urged Congress to take action consistent with these principles, including providing EPA the authority significantly reduce or eliminate the use of MTBE in gasoline.

While we have not tried to predict how controls on MTBE might affect the costs of complying with today's rule, we note that since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of the fuel or fluctuations in octane.

Finally, some of these commenters argued that EPA needs to use a "systems approach" to evaluate the relationship of oxygenate reductions with benzene levels. Because the Agency is currently working on potential controls on MTBE in a separate rulemaking, we believe it is premature to conduct a detailed analysis on the potential control of MTBE in today's rulemaking. Rather, we believe it is more appropriate for today's toxics performance requirement to be addressed in the MTBE TSCA rulemaking.

- (2) The new refinery processing configuration necessary to meet the Tier 2 requirements will likely require the production of higher aromatics (benzene) gasoline to compensate for the octane losses experienced in making the lower sulfur gasoline. Similarly, other commenters argued generally that benzene levels will increase to compensate for octane loss from desulfurizing FCC gasoline to meet the Tier 2 standards. Some of these commenters also noted that to compensate for the lost octane, small refiners will increase reformer severity (and run the platformer harder), which results in more benzene. EPA may want to use this proposal as a means to avoid that potential outcome, but EPA must assess the costs incurred by refiners to maintain current benzene levels in the face of these fuel changes. Other commenters also noted generally that to maintain baseline levels in the light of market, operational or fuel changes, refiners may choose from several strategies, but each option to decrease the benzene content of fuel would require significant capital investment and increase the operating expenses of the refiner.
- One refiner estimates that its cost of compliance will be approximately \$10 million, necessary to upgrade the splitter and to add a benzene saturation unit. Another refiner estimates that, based on changes to meet Tier II requirements, it will need to invest an additional \$35 million for a reformate splitter and an isomerization unit to maintain baseline benzene levels.

The DOE provides a detailed analysis and estimate of the cost impacts associated with the no-backsliding approach given: (1) transition to low sulfur gasoline; (2) expected near-term production increases; and (3) an MTBE ban. The DOE used a refinery modeling technique to develop the cost impact estimates. The comments include an attachment that describes the study methodology and findings. In each modeled case, the importance of octane and reformate gasoline under any of these three changes in the overall gasoline pool result in cost increases to maintain 1998-99 baseline benzene levels. Moreover, the model assumes liberal increases in demand for

benzene as petrochemical feedstock, and DOE's analysis notes that more conservative assumptions would increase the modeled cost impacts of EPA's proposal. For the low-sulfur gasoline issue, DOE estimates that the refiners' cost of complying with the proposed rule will be approximately 0.3 cents per gallon. Assuming that near-term gasoline production increases at expected levels (and assuming that those increased volumes must meet the baseline benzene levels), the refiners' costs would increase approximately by an additional 0.3 cents/gallon. Finally, the Department's analysis suggests that reducing or eliminating MTBE as a fuel component will further increase the cost of maintaining current gasoline benzene levels by 0.36 cents/gallon. Thus the combined effect of all three changes in the overall gasoline pool would be an approximate one cent/gallon increase in refiners' production costs.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 4, 9**  
American Petroleum Institute (IV-D-21) **p. 2-3, 5-6**  
Citgo Corporation (IV-D-5) **p. 3**  
ExxonMobil (IV-D-16) **p. 2, 5**  
Gary Williams Energy Corporation (IV-D-3) **p. 2**  
Marathon Ashland Petroleum, LLC (IV-D-15) **p. 5**  
Murphy Oil Corporation (IV-D-17) **p.1, 3-4**  
Placid Refining Company, LLC (IV-D-2) **p. 2**  
U.S. Small Business Administration (IV-D-26) **p. 3**  
U.S. Department of Energy (IV-G-2) **p. att**

**Response to 6.6(D)(2):** The refinery modeling overseen by the Agency for this rulemaking predicted only negligible costs related to a toxics emissions performance baseline requirement, despite capturing a greater amount of the overcompliance with toxic emissions. This situation is the result of the reduction in fuel sulfur levels which operate to reduce emissions of VOCs and air toxics by enabling the next generation of light-duty aftertreatment to operate effectively. Thus the refinery modeling predicted that even with potential changes to octane and possibly benzene content, benzene and toxic emissions will not increase above 1999 levels even after Tier 2, low-sulfur diesel fuel, and Phase II RFG. In sum, accounting for future fuel requirements known to the Agency at this time, our regional refinery modeling and emissions performance analysis does not forecast that on average refineries will need to invest additional resources to comply with the new baseline requirements finalized today. Based on our regional refinery modeling, we conclude that a toxics performance requirement would be more appropriate for our anti-backsliding program under 202(l)(2) than the proposed benzene content standard, due in part to the potential costs associated with a benzene content standard. The reader should refer to the TSD, Chapter 7.C for a more detailed discussion of the refinery modeling. Please see response 6.6(D)(1) for our response regarding MTBE.

- (3) Small refiners have restricted feedstocks, limited gasoline processing capabilities, and limited access to financing, engineering, and other resources. To the extent operational changes are needed to maintain

baseline benzene levels, the proposed regulations may force small refiners to either shut down or operate at production levels that may be uneconomical. Small refiners also may be forced to increase their dependence on outside gasoline blendstocks which may not be available at economical prices. One commenter also argued that small refiners do not have sufficient benzene volumes to cost effectively sell benzene feedstock to overseas chemical plants. One commenter also argued to meet the tighter diesel fuel sulfur standards, hydrogen consumption in hydrotreaters will increase significantly, resulting in the need to increase reformer severity. An increase in reformer severity will result in increased benzene levels in gasoline. Because of these constraints, benzene sales are not economical for small refiners. Another commenter stated that small refiners have indicated that market changes alone could mean a \$5-10 million increase in equipment costs to meet the lowest average benzene level from 1996-1999 versus the highest level. The commenter argues that these cost impacts will only increase as a result of operational changes that will be necessary to meet MTBE, desulfurization, and MACT requirements and that may affect benzene levels.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 2-3  
Kern Oil & Refining, Inc. (IV-D-31) p. 4-5  
Placid Refining Company, LLC (IV-D-2) p. 2  
Silver Eagle Refining, Inc. (IV-D-18) p. 1  
U.S. Small Business Administration (IV-D-26) p. 3  
Western Independent Refiners Association (IV-D-40) p. 2-3

**Response to 6.6(D)(3):** See response to 6.6(D)(2). In addition, our refinery modeling comparing the year 1999 as a base case year to the year 2005 as the reference case year (accounting for expected changes in fuel properties due to Phase II RFG, Tier 2 low-sulfur gasoline and 15 ppm low-sulfur diesel fuel (based on the proposed HD07rule)) showed that for CG, the toxics emissions are likely to remain at or below 1999 levels and that for RFG, refiners are likely to be able to meet or exceed the new toxics baseline requirements. Therefore, on average we do not anticipate that benzene levels will increase significantly for small refiners during the implementation of these future fuels programs. To help ensure that this toxics emission anti-backsliding program is achievable for all refiners in the near term, we are also including a deficit and credit carry forward, a compliance margin and an expanded baseline period.

- (4) One commenter estimates that the MTBE and desulfurization rules will increase gasoline benzene content by 20% from the 1998/1999 baseline levels.

Letters:

Placid Refining Company, LLC (IV-D-2) p. 2

**Response to 6.6(D)(4):** See response to 6.6(D)(1) and 6.6(D)(2).

**(E) Gasoline benzene levels will be impacted by shortages in the availability of ethanol as MTBE is phased out.**

- (1) Should ethanol supplies become limited due to the proposed MTBE phase-out, benzene levels will increase as the octane from ethanol will be replaced by operating at higher reformer severities.

Letters:

Amerada Hess Corporation (IV-D-14) p. 4  
Placid Refining Company, LLC (IV-D-2) p. 2

**Response to 6.6(E)(1):** See response to 6.6(D)(1).

**(F) Small refiners subject to the interim standards for sulfur in gasoline from 2004-2007 will likely experience an increase in gasoline benzene levels during the interim compliance period.**

- (1) To meet the interim standards, small refiners will likely undercut the heavy FCC gasoline (which is essentially benzene-free) into the distillate pool which will proportionately increase the percentage of benzene in the gasoline pool.

Letters:

Placid Refining Company, LLC (IV-D-2) p. 1

**Response to 6.6(F)(1):** The refinery modeling predicted that even with potential changes to octane and possibly benzene content, benzene and toxic emissions will not increase above 1999 levels even after Tier 2, low-sulfur diesel fuel, and Phase II RFG. In sum, accounting for future fuel requirements known to the Agency at this time, our regional refinery modeling and emissions performance analysis does not forecast that on average refineries will need to invest additional resources to comply with the new baseline requirements finalized today. Our regional refinery modeling allowed us to conclude that a toxics performance requirement would be more appropriate under 202(I)(2) than the proposed benzene content standard, due in part to the potential costs associated with a benzene content standard. The reader should refer to the TSD, Chapter 7.C for a more detailed discussion of the refinery modeling. Since we have switched to a toxics performance requirement in today's rule, refiners will have more flexibility to address fluctuations in the benzene content of the fuel, because other fuel properties may be altered in order to meet the toxics performance requirement besides benzene. Because our refinery modeling accounted for the introduction of low-sulfur gasoline, we do not believe that refiners will have significant costs in meeting a toxics performance requirement during the interim period.

**6.7: Start Date**

**(A) EPA should implement the rule earlier than the proposed 2002 start-date.**

- (1) The serious public health threats associated with MSATs in urban areas and the clear statutory mandate of the CAA warrant immediate action by the Agency, sooner than 2002.

Letters:

Consumer Policy Institute (IV-D-8) p. 2

**Response to 6.7(A):** Given that this final rule is being issued late in December 2000, and that the reporting period is the calendar year, it is not practical to implement this program sooner than the beginning of 2002. Though it is simply an anti-backsliding program, and refiners will easily and quickly be able to determine their baseline, there are baseline-related issues which will take some time to figure out. Additionally, though we could start the program early, and perhaps pro-rate baselines for that first year, there would be little or no environmental or economic value in that exercise. The Act does not specify a start date for the toxics program created out of the mandate of section 202(l), so we created a program that limits toxics emissions to recent historical levels which can be implemented as soon as practically possible.

**(B) Supports a 2002 start date.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Tosco (IV-D-41) p. 3

**Response to 6.7(B):** We agree with commenter.

**(C) EPA should implement the rule later than the proposed 2002 start date.**

- (1) EPA should delay the effective date of this proposal until after 2005 when Tier 2 and MTBE requirements are completed. Only then will the costs of this program and the magnitude of the benzene reductions be quantifiable. Other commenters stated generally that the timing should be consistent with Tier 2 and/or MTBE implementation.

Letters:

American Petroleum Institute (IV-D-21) p. 7  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 7  
Phillips Petroleum Company (IV-D-20) p. 4

- (2) Compliance with the benzene level standard by 2002 will be problematic. Once baseline determinations are made, refiners need time to develop operational plans, and perhaps some capital projects, to ensure compliance with the new standards. One commenter suggests a lead time of at least 2

years from final promulgation of the rule, and a longer lead time of up to 4 years may be required.

Letters:

American Petroleum Institute (IV-D-21) p. 7  
ExxonMobil (IV-D-16) p. 5  
Phillips Petroleum Company (IV-D-20) p. 4

**Response to 6.7(C)(1) and 6.7(C)(2):** We are finalizing the start date as proposed. Because this is an anti-backsliding program, lead time is not needed to install hardware or make operational changes. As indicated in the preamble to the final rule, refinery modeling indicates that, on average, refineries' toxics emissions will tend to be lower than 1999 levels (approximating our baseline period) after Tier 2. Thus, there is no need to wait for implementation of future controls to evaluate the achievability of these anti-backsliding standards.

**6.8: Separate Standards for RFG & CG**

**(A) Supports a single pool benzene program.**

- (1) A single pool would not affect the level of total benzene in gasoline but would provide refineries with much more flexibility. Otherwise, the flexibility for a refiner to shift production depending on their own needs, market incentives or future opt-ins to the RFG program will be very restricted.

Letters:

American Petroleum Institute (IV-D-21) p. 8  
Citgo Corporation (IV-D-4) p. 5

**Response to 6.8(A)(1):** The commenter(s) specifically raises the issue of separate anti-backsliding requirements for RFG and CG. It is true that setting a single standard for the benzene content of all gasoline, whether RFG or CG, would not allow the total amount of benzene in gasoline to increase above 1998 - 2000 levels. However, doing so could result in increases in RFG fuel benzene content, which would result in increased benzene emissions in RFG areas. We have set separate anti-backsliding baselines for RFG and CG because we have determined that separate standards represent the greatest degree of control achievable in the short term at negligible cost. A single pool for control of toxics emissions under our anti-backsliding program would not represent the greatest degree of control achievable.

**6.9: Incremental Volumes**

**(A) Supports the use of the 0.95% volume requirement for incremental volumes of RFG above baseline levels.**

- (1) Removing additional benzene from incremental RFG production does not make economic sense and will result in added cost to refiners. Some commenters noted that subjecting incremental RFG production to baseline levels would penalize refiners that have overcomplied. A 0.95% by vol. requirement will encourage incremental RFG production where needed and provide needed flexibility for refiners to respond to increased RFG demand and avoid supply disruptions. One commenter added that, with gasoline demand increasing, more stringent standards on incremental volumes would likely have a significant negative impact on the market. One of the commenters also suggested that, because incremental volumes will be subject to Phase II RFG, a simpler solution may be to exempt incremental volumes from this rule.

Letters:

American Petroleum Institute (IV-D-21) p. 8

British Petroleum (IV-D-18) p. 2

ExxonMobil (IV-D-15) p. 7

Marathon Ashland Petroleum, LLC (IV-D-14) p. 7

National Petrochemical and Refiners Association (IV-D-33) p. 7

Phillips Petroleum Company (IV-D-20) p. A-3

Sunoco, Inc. (IV-D-23) p. 2

**Response to 6.9(A)(1):** The use of the current 0.95 vol% benzene requirement for incremental volumes of RFG above baseline volumes is equivalent to excluding incremental volumes from this rulemaking. As described in the preamble, we have in fact determined that it is appropriate to exclude incremental volumes.

According to our analysis of the relationship between fuel benzene content and increasing gasoline production volumes, as summarized in the Technical Support Document, we believe that incremental volumes will exhibit very small, if any, increases in fuel benzene content. As a result, we would not expect that the application of our anti-backsliding requirement to incremental volumes would result in added cost to refiners. However, since our analysis focused on fuel benzene content only, and since it did not take into account the potential for increased gasoline imports to meet growth in gasoline consumption over time, we cannot be confident that the toxics emissions performance levels of gasoline will not deteriorate as production volumes increase above baseline levels. If the toxics emissions performance deteriorates with increasing production, our standard could impose significant costs on refiners by requiring them to control the toxics performance of these incremental volumes. Because we do not believe that a program that imposes these costs is achievable in the near term, and because we do not want to create a disincentive for RFG producers to increase production, we are excluding these incremental volumes from today's rule. These incremental volumes, however, will remain subject to the existing RFG standards in 40 CFR §80.41.

Concerning the comment that subjecting incremental RFG production to baseline levels would penalize refiners that have overcomplied, please see our response to Issue 6.6(C).

**(B) Incremental CG should be limited to original 1990 CG industry average benzene levels.**

- (1) Such an approach is consistent with the existing regulations and is consistent with the approach suggested by many commenters for RFG. One commenter added that, with gasoline demand increasing, more stringent standards on incremental volumes would likely have a significant negative impact on the market.

Letters:

American Petroleum Institute (IV-D-21) p. 8

British Petroleum (IV-D-18) p. 2

ExxonMobil (IV-D-15) p. 7

National Petrochemical and Refiners Association (IV-D-33) p. 8

Phillips Petroleum Company (IV-D-20) p. A-3

**Response to 6.9(B)(1):** For the reasons stated in the preamble and in our response to Issue 6.9(A)(1), on the basis of the information available to us at this time we cannot guarantee that the toxics emission performance levels of incremental volumes will not deteriorate. This holds true for CG as well as RFG. As a result, we have determined that the exclusion of incremental volumes from our anti-backsliding program should apply to CG as well as RFG to ensure that today's rule is achievable in the near term.

**(C) Incremental volumes should be subject to national average benzene levels (0.66% RFG and 1.11% CG).**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Amerada Hess Corporation (IV-D-13) p. 3, 8

**Response to 6.9(C)(1):** We have decided to exclude incremental volumes from this rule, rather than applying a separate standard to these volumes. We believe this approach is the most reasonable way to avoid imposing potentially significant costs on refiners and ensure that today's standards are achievable in the near term.

**(D) For incremental volumes of CG and RFG, EPA should use the industry-wide average for the baseline period selected in the final rule.**

- (1) Such an approach will provide needed flexibility while maintaining the intent of the anti-backsliding approach. If EPA does not take this approach to incremental volumes, refineries with the highest baselines will have the greatest incentive to increase production at the lowest cost.



Letters:

Chevron (IV-D-34) p. 1

**Response to 6.9(D)(1):** See our response to Issue 6.9(C). We believe the exclusion of incremental volumes from this rule addresses commenter's concern regarding disincentives to increase production.

**(E) EPA should propose a single weighted annual standard rather than 2 separate compliance periods and compliance levels (one applicable to baseline production and another applicable to incremental production).**

- (1) Most commenters suggested this for both RFG and CG. Commenters generally provided no further supporting information or detailed analysis, although one commenter supported this approach only for CG and provided an example of how this approach would work for CG.

Letters:

American Petroleum Institute (IV-D-21) p. 8

ExxonMobil (IV-D-15) p. 7

National Petrochemical and Refiners Association (IV-D-33) p. 8

Phillips Petroleum Company (IV-D-20) p. A-3

**Response to 6.9(E)(1):** As discussed in our response to Issue 6.8, we have determined that our anti-backsliding program should apply separately to RFG and CG. However, we agree that within these two pools of gasoline, our anti-backsliding program should set a single standard rather than two standards, one applicable to baseline volumes and another to incremental volumes.

Since we have determined that our program should exclude incremental volumes, it was necessary to adjust the compliance calculations accordingly without requiring refiners to identify the specific volumes of their gasoline which might be labeled the incremental volumes. Otherwise there would in fact be separate standards applicable to baseline and incremental volumes. As described in the Technical Support Document, we have finalized a compliance procedure in which the existing standards for RFG or CG, as applicable, are volume-weighted with a refinery's own baseline toxics performance levels to obtain the compliance baseline applicable to all future production. This procedure effectively excludes incremental volumes from the compliance calculation while avoiding separate standards for baseline and incremental volumes.

**(F) Additional volumes (or gasoline produced by importers/foreign producers should meet the most stringent of: the individual refiner's 1998-99 baseline or 1998-99 national average baseline.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Bluewater Network (IV-D-29) p. 1-2

**Response to 6.9(F)(1):** See our response to issue 6.9(C).

**6.10: Appropriate Baseline Period**

**6.10.1: Proposed 1998-99 Baseline Period**

**(A) Expressed support for the proposed baseline period.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 1

**Response to 6.10.1(A):** While a 1998-1999 baseline period was proposed, after further consideration, we believe that a baseline period of 1998-2000 is more appropriate because it includes the most recent gasoline production of a refinery. A three-year baseline period also averages out the effects on gasoline from operational irregularities and changes such as equipment turnarounds.

**(B) Expressed opposition to the proposed baseline period.**

- (1) The arbitrary choice of the 1998/1999 period penalizes those refiners who, because of various operating or market conditions during those years, had lower benzene levels than would otherwise be normal or reasonable. (See related comments under Issue 6.6.) A number of these commenters proposed alternative baseline periods (see Issue 6.10.2). One commenter added that the choice of a 1998-99 baseline year restricts small refiners and does not allow the flexibility small refiners need to operate efficiently. Commenter points to conflicts with recent design changes at its plant and the likely restrictions on blend stock mixes as adverse effects caused by use of the 1998-99 baseline period.

Letters:

Amerada Hess Corporation (IV-D-14) p. 1, 3, 6  
Citgo Corporation (IV-D-5) p. 1  
Countrymark Cooperative, Inc. (IV-D-35) p. 2  
Gary Williams Energy Corporation (IV-D-3) p. 2  
Phillips Petroleum Company (IV-D-20) p. A1-A2

**Response to 6.10.1(B)(1):** As indicated in the proposal, we believe, that in general, refiners were operating during the proposed baseline period at a benzene level that was the best for them at the time. Many of the refiners with the lowest baseline benzene levels remove benzene from their gasoline pool by extracting it and selling it to the petrochemical market. This extraction technology is quite costly, and is not likely to be underutilized. Additionally,

we do not expect a downturn in the petrochemical market's need for benzene as a feedstock. Thus, those refiners that have low benzene levels (mostly those with extraction capability) will likely be able to continue extracting benzene, thus maintaining their low baseline benzene levels. The form of the standard finalized today, a toxics performance standard, may be more flexible for most refiners than the proposed benzene standard. Finally, the start of the Tier 2 gasoline sulfur program should provide yet additional flexibility in meeting today's toxics requirement, as our refinery modeling predicts that, on average, toxics emissions after start of Tier 2 should be lower than during the baseline period.

With regard to the small refiner comment, we do not have provisions for small refiners because we determined that this rule does not affect small refiners differently than it affects all other refiners. We have provided a number of flexibilities, including deficit and credit carryforward, which are available to all refiners. Additionally, we believe that adding the year 2000 to the baseline period (now, 1998-2000) helps to smooth out year-to-year inconsistencies at the refinery, due to operational factors, marketing, etc. We have also included a provision which allows a refiner to petition for a different baseline for its refinery in certain situations.

- (2) The proposed baseline period ignores the impact of compliance with recently promulgated and pending fuels regulations which will impact the benzene concentration in the gasoline pools. (See related comments under Issue 6.6.)

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 2  
Murphy Oil Corporation (IV-D-17) p. 2

**Response to 6.10.1(B)(2):** We disagree that the proposed baseline period, or the baseline period finalized today, ignore the recently promulgated rules (presumably, Tier 2 gasoline sulfur). We used refinery modeling results in our analysis for this rule which showed that, on average, toxics emissions after the start of the gasoline sulfur program will be lower than in the baseline period (for the refinery modeling work, 1999). Thus, it is likely that by virtue of complying with the gasoline sulfur rules, refiners may find it easier to comply with today's toxics requirements. It is premature at this time to consider the impact on toxics performance of the upcoming MTBE rule because we do not know what that rule will look like.

- (3) The proposed baseline period penalizes those refiners who have optimized or revised their operation in such a manner that has inadvertently increased gasoline pool benzene levels, such as changes in availability of feedstock or purchased gasoline blendstocks. One commenter's facility is no longer able to procure the same lower benzene content blendstocks that it purchased in 1998-1999.

Letters:

Amerada Hess Corporation (IV-D-14) p. 1-2

**Response to 6.10.1(B)(3):** We expanded the baseline period to encompass three years instead of two. The three year baseline period should help to smooth out operational

irregularities and bring the baseline closer to the most recent operational year. And, as explained above, the gasoline sulfur program will likely cause toxics emissions levels to decrease beyond those of the baseline period, thereby further ensuring that the costs associated with this rule will be negligible. Additionally, the switch from the proposed benzene standard to today's finalized toxics standards should provide more flexibility for a refiner.

- (4) The proposed baseline period penalizes those refiners who supplied Oxygenated Fuels Program Gasoline to States as mandated by EPA due to certain States' designation as CO non-attainment areas. The baseline also penalizes any refiner who has recently completed capital project work to improve refinery operations in such a way that may increase overall gasoline pool benzene. In addition, the proposed baseline penalizes those refiners that ran without downtime of benzene extraction equipment during the period. When these extraction units are shut down for required maintenance, the refiner will not be able to match baseline benzene levels.

Letters:

Amerada Hess Corporation (IV-D-14) p. 2-3, 6-7

**Response to 6.10.1(B)(4):** We agree that the use of oxygenate reduces fuel benzene levels due to dilution. However, considering the switch from the proposed fuel benzene content standard to a toxics performance standard, and the compliance margin and other flexibilities provided as part of today's rule, we believe that refiners have sufficient flexibility to address these types of changes. Nonetheless, we have provided limited provisions for baseline adjustments under today's rule.

- (5) If refiners met more stringent benzene levels in 1999-2000, EPA should use that period as the point of reference to ensure that there is no backsliding from current benzene levels.

Letters:

Clean Air Network, et al (IV-D-38) p. 3

**Response to 6.10.1(B)(5):** We have expanded the baseline period to include the year 2000, creating a baseline period that spans 1998-2000. We did not choose this period to capture the lowest average benzene levels of refiners. Rather, we chose this period to encompass recent activity. The period 1999-2000 may have been the lowest average benzene period for some refiners, but certainly not all refiners. We chose the baseline period for this anti-backsliding rule to ensure that the standard would be achievable in the near term. Additionally, we included 2000 data to reflect the most recent operations and extended the baseline period to three years to account for operational irregularities and changes.

**(C) EPA should revise section 80.690(c)(2)(i) to delete the term "annual."**

- (1) The benzene baseline is a volume-weighted average over a 24-month period, not an annual average.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 16

**Response to 6.10.1(C)(1):** We have taken commenter's suggestion into account in modifying the regulations to the new toxics performance approach .

**6.10.2: Alternative Baseline Periods and Adjustments**

**(A) Several years of data should be used to establish a baseline in order to account for the many factors that influence a refinery's gasoline volume, benzene level, and RFG/CG ratio from year to year.**

- (1) A longer timeframe, such as 1996-1999 or 1997-1999 at a minimum, is preferred because a longer period would be more representative of actual refinery operations over time, and less influenced by short-term shifts in operations or markets, than a two-year period. This approach would reduce the need to petition for an alternative. One commenter specifically recommended a 1996-99 baseline period because that period: covers the RFG Phase I period with exclusion of the first transition year (1995); covers a 4-year span that is likely to include and recognize most major turnarounds at refineries and at least allows their impact to be averaged over four years; and is consistent with the anti-dumping blendstock controls.

Letters:

American Petroleum Institute (IV-D-21) p. 7

British Petroleum (IV-D-19) p. 2

ExxonMobil (IV-D-16) p. 7

National Petrochemical and Refiners Association (IV-D-33) p. 7

Tosco (IV-D-41) p. 3

**(B) Opposes an individual refiner/importer baseline, but if EPA determines one is necessary, it should include as many years as practical.**

- (1) One commenter suggested a four-year baseline (1996-1999) which includes operational fluctuations at any given refinery, while another commenter suggested using the entire RFG Phase I period (1995-1999). This approach would reduce the need for a refiner to petition for a different baseline period if, during a portion of the baseline period, operations were significantly different from average.

Letters:

Citgo Corporation (IV-D-5) p. 4

Phillips Petroleum Company (IV-D-20) p. A1-A2

- (2) Commenter suggests a 3-year baseline period from 1998-2000. Inclusion of the year 2000 into the baseline period will incorporate recent operational history and help compensate those refiners that have undergone recent operational changes.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 3, 8**

**Response to 6.10.2(A)(1), (B)(1), and (B)(2):** We are finalizing a three-year baseline period, encompassing the years 1998, 1999 and 2000. This baseline period, which is one year longer than the baseline period we proposed, provides baseline values which are truer to a refinery's "normal" operating mode. We believe that including 2000, precisely because it is a Phase II RFG year, improves the baseline because it adds data to the baseline determination which is the most recent available. Including 2000 also helps to further offset (by virtue of a 3-year average versus a 2-year average) the effects of unit turnarounds at the refinery. At the same time, we do not expect significant differences, on average, between a baseline established using the 2-year averaging approach and one developed using the 3-year approach. However, we believe that for an individual refinery, the 3-year averaging approach provides that refinery with a more robust baseline. Finally, given that compliance with this rule is unlikely to require any capital improvements or operational changes by refiners to achieve its goals, and since refiners will have the 2000 data, we believe this data should be included in the baseline determination.

**(C) A refiner should be allowed to adopt as its baseline either their average benzene level in 1998-99 or their highest average level from the last five years. Or the baseline choice could be between the 1998-99 average or an average based on any two years of the refiner's choice from the last five years.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) **p. 3**

- (2) Offering refiners, especially small refiners, a baseline choice might provide some flexibility. However, this would not fully address the likely future changes in the baseline beyond 2000 that will be necessary because of other fuel control regulations.

Letters:

U.S. Small Business Administration (IV-D-26) **p. 4**

- (3) Commenter prefers a small refiner exemption for Phase I, but in the absence of an exemption believes that this type of baseline flexibility could provide some flexibility for small refiners in the interim period before 2004.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 4

**Response to 6.10.2(C)(1), (C)(2), and (C)(3):** We disagree that a refinery's baseline should be its highest level during any time period, or the refiner's choice of any two years (which likely would result in the highest average level), even under a toxics performance standard. We set a uniform baseline period because it sets a standard, based on the most recent activity for every refiner, which likely was the most economical manner in which to run the refinery. Additionally, we have not included small refiner provisions because we do not believe small refiners are affected differently by today's rule than other refiners. However, we have included a provision which allows a refiner to petition for an alternative baseline for its refinery in certain situations.

**(D) Opposes inclusion of the years 1995 and 2000 in the baseline.**

- (1) Commenters oppose use of these years because they were RFG transition years, and therefore are not representative of actual refinery operations over time.

Letters:

American Petroleum Institute (IV-D-21) p. 7  
ExxonMobil (IV-D-16) p. 7

**(E) Opposes the use of the year 2000 in the baseline because, since the time EPA published its proposed rule, some refiners may choose to modify data for the final quarter of the year 2000.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Phillips Petroleum Company (IV-D-20) p. A-2

**Response to 6.10.2(D) and (E):** We believe that including 2000, precisely because it is a Phase II RFG year, improves the baseline because it adds data to the baseline determination which is the most recent available. Including 2000 also helps to further offset (by virtue of a 3-year average versus a 2-year average) the effects of unit turnarounds at the refinery. While transition year issues were probably significant in 1995 at the start of the RFG and anti-dumping programs, we believe that the switch to the Phase II RFG requirements was less significant, in part because of the familiarity with the regulations and the production of fuels even before 2000 that met the Phase II standards. For conventional gasoline, transition is not an issue because the baseline fuel is the same, only the emissions, by virtue of the Phase II Complex Model, are different. We are not concerned about refiners modifying data for the final quarter of 2000 because this rule will not be issued until its court-ordered deadline of December 20, 2000 and it is our understanding that most operating plans for December have been finalized much earlier. We do not believe refiners would (or could) significantly modify their operations for 11 days in order to affect a baseline determined over a 3-year period.

**(F) Commenter proposes a baseline using the 2-year period following the first year in which a refinery meets the Tier 2 standards.**

- (1) Doing so will assure that the goals of the proposed rule and the Tier 2 standards will be met in the most efficient and fair means possible.

Letters:

Murphy Oil Corporation (IV-D-17) p. 2

**Response to 6.10.2(F)(1):** We do not agree with this comment. The toxics baseline after a refinery meets the Tier 2 standards will likely be more stringent than a baseline determined for the baseline period finalized today. As discussed in the preamble, refinery modeling indicates that toxics emissions after the start of the gasoline sulfur program are, on average, expected to be lower than during the 1998-2000 baseline period. Additionally, we do not believe it would be appropriate nor practical from an enforcement point-of-view, for the purposes of this anti-backsliding rule, to have refineries subject to the rule at different times. If we were to implement such a rule, we likely would have to consider interim toxics standards for those not immediately subject to their baseline standard. As part of the 2004 rulemaking, we will likely consider whether further changes to today's rule are appropriate given implementation of Tier 2 and other programs.

**(G) Commenter suggests that EPA keep the original 1990 refinery baseline numbers derived from the Anti-dumping Regulation in Subpart E.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 3

**Response to 6.10.2(G):** We disagree with this comment. Refineries have demonstrated that, for at least some of them, standards beyond the 1990 levels are achievable even in the near term, considering cost, lead time and other factors. In some cases, however, a refinery did not overcomply with their anti-dumping baseline. For these refineries, their 1998-2000 baseline will be the same as their 1990 anti-dumping standard.

**(H) EPA should allow certain baseline adjustments.**

- (1) First, for those refiners who supplied OPRG during the baseline period to those control areas that no longer require high oxygen fuel, EPA should allow refiners to back out the oxygenate dilution effect associated with oxygenate blending beyond the 2.0% wt. required by the Federal RFG program.

Letters:

Amerada Hess Corporation (IV-D-14) p. 3-4, 8



- (2) Second, if refiners began capital projects before the proposal that could affect benzene levels, EPA should allow the refiners to factor in the impact of these projects in determining the baseline.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 4, 8**

- (3) Third, EPA should allow refiners to include the effects of turnarounds on the 1998/1999 benzene baseline determination. Refiners operate their process units on 4-5 year maintenance cycles; and many did not conduct any major turnaround activities during the 1998-1999 baseline period.

Letters:

Placid Refining Company, LLC (IV-D-2) **p. 3**

- (4) Fourth, in determining 1998-99 benzene levels, the rule should allow small refiners to back out blendstocks and oxygenates purchased solely for anti-dumping or other regulatory compliance.

Letters:

Silver Eagle Refining, Inc. (IV-D-18) **p. 1-2**

**Response to 6.10.2(H):** See response to Issue 6.10.3(A).

**6.10.3: Petitions for Alternative Baseline**

- (A) Refiners should be allowed to petition for a different baseline period if, during a portion of the baseline period, operations were significantly different from normal.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

American Petroleum Institute (IV-D-21) **p. 7**

British Petroleum (IV-D-19) **p. 2**

ExxonMobil (IV-D-16) **p. 7**

National Petrochemical and Refiners Association (IV-D-33) **p. 7**

**Response to 6.10.3(A):** In general, we are not allowing baseline adjustments under this rule, as were allowed under anti-dumping. The toxics baselines of this rule are based on actual data – refinery modeling is not being used to estimate the quality or quantity of gasoline during the baseline period. Nonetheless, we have provided limited provisions for baseline adjustments under today's rule.

**6.11: Flexibility Provisions**

### 6.11.1: 1- or 2-year Compliance Period

**(A) EPA should consider a two-year average for compliance purposes.**

- (1) Commenter makes clear, however, that neither this approach nor a one-year deficit carryover option provides adequate protection for small refiners.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 4

- (2) Commenter provides no further supporting information or detailed analysis.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 3

**Response to 6.11.1(A):** See response to Issue 6.11.2(B).

**(B) A one-year averaging/compliance period is preferred provided that a refiner would be allowed to make up any deficit and be in compliance the following year.**

- (1) Refiners should also be allowed to carry-over any benzene credit to the following year, which could be used to demonstrate compliance. Most of these commenters added that, absent any deficit/carryover provision, a two-year compliance period is preferred.

Letters:

American Petroleum Institute (IV-D-21) p. 8-9

British Petroleum (IV-D-19) p. 2

Citgo Corporation (IV-D-5) p. 4

ExxonMobil (IV-D-16) p. 6

**Response to 6.11.1(B)(1):** See response to Issue 6.11.2(B).

### 6.11.2: 1-year Carryover Option

**(A) Opposes a one year deficit carry-over provision.**

- (1) A one-year standard is more protective of human health and the environment and is a long enough averaging period for refiners to account for production fluctuations.

Letters:

Bluewater Network (IV-D-29) p. 2

**(B) Supports a one-year deficit carry-over provision.**

- (1) Commenter provides no further supporting information.

Letters:

Amerada Hess Corporation (IV-D-14) **p. 3, 8**

- (2) Such a provision allows a refiner the opportunity to correct a problem that occurs unexpectedly toward the end of a year.

Letters:

American Petroleum Institute (IV-D-21) **p. 8-9**

Citgo Corporation (IV-D-5) **p. 4**

Marathon Ashland Petroleum, LLC (IV-D-15) **p. 7-8**

National Petrochemical and Refiners Association (IV-D-33) **p. 9**

Tosco (IV-D-41) **p. 3**

- (3) Moreover, commenters supported a program that would allow a refiner to carry-over credits as well as deficits to year two. The net result would be the same as benzene levels remain at baseline levels for any two year period, but more flexibility is granted to refiners.

Letters:

American Petroleum Institute (IV-D-21) **p. 8-9**

British Petroleum (IV-D-19) **p. 2**

Citgo Corporation (IV-D-5) **p. 4**

ExxonMobil (IV-D-16) **p. 6**

Marathon Ashland Petroleum, LLC (IV-D-15) **p. 8**

Phillips Petroleum Company (IV-D-20) **p. A-2**

- (4) IF EPA does not provide a deficit carry-over provision, then a two-year compliance period is necessary to provide flexibility and EPA also should include a benzene trading program for refiners.

Letters:

ExxonMobil (IV-D-16) **p. 6**

- (5) Although generally supportive, one commenter notes that such a provision (or a 2-year compliance period) provides only a very minimal safety net because of the more stringent operating levels required for offset.

Letters:

Gary Williams Energy Corporation (IV-D-3) **p. 4**

- (6) One commenter argued that the carry-over should be allowed for every period even if used in the prior period, so long as the deficit from the prior period has been fulfilled.

Letters:

Phillips Petroleum Company (IV-D-20) p. A-2

**Response to 6.11.2(A) and (B):** In the NPRM we discussed compliance periods of varying length different from the proposed single calendar year compliance period. We believe a one-year compliance period is consistent with the compliance periods of other gasoline programs (and thus represents minimal additional reporting burden for refiners and importers), and it is short enough that temporal variations in toxics emissions are minimized. For these reasons, we are finalizing a one-year compliance period as proposed.

We do realize, however, that even for an anti-backsliding program, unusual situations may happen which can significantly affect refinery operations, and which could cause the refinery to be out of compliance with its requirement. To this end, we proposed and are finalizing a one-year deficit carryforward. This will allow a refinery to exceed its anti-backsliding toxics requirement for one year. In the next year, it must make up the deficit as well as be in compliance for that year. Additionally, though not proposed, we are also including a one-year credit carryforward. Under this provision, a refinery producing gasoline that is cleaner than required by its toxics anti-backsliding requirement may use the overcompliance to cover any deficit in the following year. Because we are also providing a toxics performance standard compliance margin, overcompliance will be creditable for purposes of a credit carryforward only to the extent that it is overcompliant beyond the compliance margin. The overcompliance credits may not be traded to another company, and they expire at the end of the next calendar year. Thus we have provided refiners with compliance flexibility in several forms.

### 6.11.3: Trading Program

**(A) Commenter opposes a credit and trade program.**

- (1) The commenter argued that a credit program provides no environmental or public health benefit.

Letters:

Bluewater Network (IV-D-29) p. 2

- (2) Although credit programs are established to provide flexibility, in practice they can cause unfair competitive advantage. This has occurred with the oxygen credit program when Gulf Coast refiners have used oxygen credits generated from ethanol use in the Midwest. A refinery-specific average with a compliance margin would enable refiners to comply and would provide equity among refiners.

Letters:

Sunoco, Inc. (IV-D-23) p. 2

**RESPONSE to 6.11.3(A)(1) and (A)(2):** In the NPRM, we discussed the possibility of including another flexibility in the form of a credit trading program. Comments about this option were mixed. Some refiners supported such a program, and offered other suggestions to enhance or clarify the program. At least one refiner did not support such a program, saying it would provide an unfair competitive advantage. Other industry commenters were unsure of the actual implementation and feasibility of the program, given the unequal baselines among refiners. Additionally, a trading program could result in gasoline quality shifts from area to area. The goal of this anti-backsliding program is to maintain gasoline quality (with respect to toxics emissions) at the refinery level; we do not expect geographic gasoline quality shifts as a result of this program. Thus, because of these implementation, feasibility and anti-competitive concerns, and because of the many other compliance flexibilities provided in today's program, we are not including a credit program as part of this rulemaking.

**(B) Commenter supports a credit and trade program.**

- (1) Such a program would allow refiners additional flexibility in meeting the proposed standard and thus would be beneficial. Some commenters stated that the program would reward those refiners who can reduce benzene levels below the baseline. One commenter noted that credits could be separately traded in RFG and CG categories, with the net effect of no increase in overall benzene. One commenter, although generally supportive, raised concerns of fairness in that those refiners with the highest baselines may most easily generate benzene credits.

Letters:

Amerada Hess Corporation (IV-D-14) p. 3, 8  
American Petroleum Institute (IV-D-21) p. 9  
British Petroleum (IV-D-19) p. 2  
Citgo Corporation (IV-D-5) p. 4  
ExxonMobil (IV-D-16) p. 6  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 7-8  
Phillips Petroleum Company (IV-D-20) p. 5, A-3  
Placid Refining Company, LLC (IV-D-2) p. 3

**Response to 6.11.3(B)(1):** See response to 6.11.3(A)

- (2) A credit program in conjunction with a standard based on a national average, but set slightly higher than the 1998-99 industry average baseline, would insure that no new construction is required and alleviate the concerns of small refiners.

Letters:

Koch Petroleum Group (IV-D-36) p. 1

**Response to 6.11.3(B)(2):** See response to 6.11.3(A)

- (3) Such a program would be beneficial to small refiners only if they were able to bank credits for any periods which were under the benzene baseline before the rule's effective date.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 4

**Response to 6.11.3(B)(3):** See response to 6.11.3(A)

- (4) EPA should consider giving added value to credits generated below the national average benzene levels for CG and RFG.

Letters:

Citgo Corporation (IV-D-5) p. 4

**Response to 6.11.3(B)(4):** See response to 6.11.3(A)

**(C) The RFG benzene credit trading program should be extended to the anti-backsliding gasoline benzene program.**

- (1) It seems unreasonable for a benzene credit trading program to exist to facilitate compliance with a maximum 0.95 vol% annual average for RFG without applicability to a new program with a more stringent standard.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 8

**Response to 6.11.3(C)(1):** See response to 6.11.3(A)

**(D) Even absent a trading program, EPA should allow cumulative banking of benzene credits for a refiner's own use.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 3

**Response to 6.11.3(D)(1):** Today's rule contains a one-year credit carryforward provision applicable to a refinery or aggregate of refineries. Under this provision, a refinery or an aggregate may exceed (i.e., be cleaner than) its RFG or CG standard in one year, and use the credit thereby created to offset a deficit the next year. This provision applies separately to RFG and CG, and cannot be applied to other refineries or aggregates. We limited the credit carryforward to one year, the same as the proposed and also finalized deficit

carryforward provision. As discussed in the NPRM, a one-year compliance period is consistent with the compliance periods of other gasoline programs (and thus represents minimal additional reporting burden for refiners and importers), and it is short enough that temporal variations in toxics emissions are minimized.

#### **6.11.4: Hardship Waiver**

##### **(A) Opposes provision for refiners to petition for economic hardship waiver.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

American Petroleum Institute (IV-D-21) p. 7

**RESPONSE to 6.11.4(A):** In general, because this is an anti-backsliding rule, and not a standard requiring additional reductions in emissions, hardship should be limited. We are, however, adopting a provision permitting a refiner to seek a temporary waiver from the toxics anti-backsliding requirements in certain circumstances. Such a waiver will be granted at EPA's discretion. Under this provision, a refiner may seek permission to exceed its toxics anti-backsliding requirements based on the refiner's inability to produce complying gasoline because of extreme and unusual circumstances outside of the refiner's control that could not have been avoided through the exercise of due diligence. This provision is similar to a provision in EPA's RFG and gasoline sulfur regulations. It is intended to provide refiners limited relief in unanticipated circumstances that cannot be reasonably foreseen at this time or in the near future. The conditions for obtaining such a waiver are similar to those in the RFG regulations. These conditions are necessary and appropriate to ensure that any waivers granted are limited in scope, and that a refiner does not gain an economic benefit from a waiver. Therefore, a refiner seeking a waiver must show that the waiver is in the public interest, that the refiner was not able to avoid the nonconformity, that it will make up, where practicable, the air quality detriment associated with the waiver, that it will pay back any economic benefit from the waiver, and that it will meet its toxics anti-backsliding requirements as expeditiously as possible. The refiner must also show that it will be unable to meet its toxics anti-backsliding requirements even considering the deficit and credit carryforward flexibility provisions included in today's program.

##### **(B) Sec. 80.775 in the proposed rule, which provides for a temporary waiver to distribute non-conforming fuel, makes no sense because the proposed benzene average would be an annual average.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 4

**RESPONSE (6.11.4(B)):** We agree with commenter that the language of the proposed section 80.775 is awkward when applied to an annual average standard. Nonetheless, we believe it is important to provide this type of flexibility in the toxics program we are

promulgating today, because it is possible that certain events (as specified in section 80.775) could cause a refiner to significantly exceed its annual average standard by an amount which cannot be remedied by the refiner the next year (deficit carryforward). Thus we are retaining this provision with minor modification to the language to better fit the toxics program promulgated today.

**(C) Supports a hardship waiver, at least for small refiners.**

- (1) Commenter provides no further detailed analysis.

Letters:

Silver Eagle Refining, Inc. (IV-D-18) p. 2

**Response to 6.11.4(C):** See response to Issue 6.11.4(A)

**6.11.5: Aggregation of Refineries**

**(A) Commenter supports additional flexibility by allowing multi-refinery refiners and importers the choice of aggregating refineries to determine compliant benzene baseline level for both RFG and CG individually.**

- (1) The overall benzene concentrations will be maintained while providing needed flexibility to maintain and/or increase both RFG and conventional gasoline.

Letters:

British Petroleum (IV-D-19) p. 2

**Response to 6.11.5(A)(1):** We agree with the commenter that the ability of multi-refinery refiners to aggregate baselines for compliance is a flexibility. This flexibility is already provided through the anti-dumping program. Because today's toxics program is based on a baseline period of 1998-2000, and because most refiners who have chosen to comply on an aggregate basis did so during this time period, we are requiring them to also comply on the same aggregate basis for this program.

**6.11.6: Other Flexibility Options**

**(A) EPA should allow refiners to include the effects of turnarounds or other circumstances on the benzene compliance standard.**

- (1) If the baseline determination does not account for the fact turnarounds may not have occurred during the baseline period, then EPA should include an appropriate adjustment as part of the compliance determination process.

Letters:



Placid Refining Company, LLC (IV-D-2) p. 3

- (2) Rule should have provision to account for aberrations in production levels and benzene concentrations experienced in 1998-1999.

Letters:

Silver Eagle Refining, Inc. (IV-D-18) p. 2

**Response 6.11.6(A)(1) and (A)(2):** We are including a in the form of a baseline adjustment provision for those refiners that can demonstrate how circumstances during 1998-2000 materially affected the baseline toxics value determination.

**(B) EPA should establish a reasonable minimum for the number of batches required to establish a baseline.**

- (1) If a refiner produced fewer batches during the baseline period than this minimum, then the industry-average benzene levels would apply. This exception would address, for example, non-CA RFG or CG produced by CA refineries because those fuel types represent such a small portion of the refineries' total production.

Letters:

Chevron (IV-D-34) p. 2

Tosco (IV-D-41) p. 4

**Response to 6.11.6(B)(1):** The regulations for this rule require that a refinery must have 12 consecutive months of data. Refineries with less than 12 months of data must comply with the default baseline.

## **6.12: Testing, Reporting and Recordkeeping, and Compliance/Enforcement Issues**

**(A) Proposed testing requirements are excessive.**

- (1) Since the proposed benzene content limit for CG is not a per gallon limit, but rather an annual average, there is no need to impose a requirement that the testing for benzene content be completed prior to batch shipment. Furthermore, if EPA removes the testing prior to batch shipment requirement of section 80.730(a)(1), the in-line blending exemption requirement would not be needed.

Letters:

American Petroleum Institute (IV-D-21) p. 10

ExxonMobil (IV-D-16) p. 9

Koch Petroleum Group (IV-D-36) p. 4

National Petrochemical and Refiners Association (IV-D-33) p. 16

Phillips Petroleum Company (IV-D-20) p. A-4, A-5

**Response to 6.12(A)(1):** EPA agrees with the commenter's recommendations on this issue. Since there is no per gallon standard for benzene or toxics emissions for conventional gasoline, there is no need to test such gasoline prior to shipping. Therefore, EPA is eliminating that requirement from today's final rule.

- (2) Sample compositing is a less exact method for determining compliance than every-batch analysis. Commenter suggests EPA not encourage such approaches.

Letters:

American Petroleum Institute (IV-D-21) p. 13  
Phillips Petroleum Company (IV-D-20) p. A-4

**Response to 6.12(A)(2):** EPA agrees that sample compositing is a less exact method for determining compliance and therefore, EPA proposed eliminating sample compositing for conventional gasoline in its 1997 proposal (62 FR 37337, July 11, 1997). However, it was not the purpose of this rulemaking to address that matter. When EPA finalizes its 1997 NPRM, the issue of sample compositing for conventional gasoline will be addressed more fully and today's rule will be made consistent with that final rulemaking at that time with regard to this issue.

**(B) The dissimilar treatment of blending of downstream components into gasoline raises questions as to the compliance approach intended by the Agency.**

- (1) EPA has explicitly excluded blenders of oxygenate and butane, but failed to exclude the blending of other components, such as pentanes, toluene and alkylate. EPA should maintain consistency in the treatment of blendstocks in this rule with the treatment provided in other gasoline antidumping and Tier 2 sulfur requirements.

Letters:

Phillips Petroleum Company (IV-D-20) p. A-4

**Response to 6.12(B)(1):** The commenter is only partially correct in its assessment of this matter. All non-oxygenate blendstocks, including benzene, as well as those listed, are included for compliance purposes in both the anti-dumping and Tier 2 requirements since those blendstocks can adversely impact compliance with the applicable standards. However, oxygenates and butane were explicitly excluded from the NPRM and today's final rule because they would not adversely impact annual average benzene or toxics emissions levels which is not the case for the other blendstocks listed by the commenter.

**(C) EPA should provide provisions to allow for effects of downstream oxygenate blending to be adequately accounted for in determining benzene content.**

- (1) One commenter explained that as refiners switch from MTBE to ethanol, oxygenate blending will shift from the refinery to the terminal. For RFG, certain lab sample procedures apply, but for CG EPA needs to develop appropriate procedures. The commenter added that EPA needs to insure that this occurs without burdensome record keeping or segregation requirements.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 9  
Tosco (IV-D-41) p. 3-4

**Response to 6.12(C)(1):** At this time, there is no regulatory requirement that refiners shift from the use of MTBE to ethanol. However, when, and if that occurs, the provisions contained at 40 CFR §§ 80.69(a) and 80.101(d)(3) provide appropriate methods for refiners to adequately account for the properties of gasoline at the refinery where oxygenates are added downstream of the refinery. EPA does not believe that this creates any additional burdensome record keeping or segregation requirements and is consistent with current provisions contained in the RFG and anti-dumping programs.

**(D) Opposes any new refinery reports as a result of this rulemaking.**

- (1) Any further reporting/attestation requirements should be added to existing RFG and CG forms and reports.

Letters:

Tosco (IV-D-41) p. 4

**Response to 6.12(D)(1):** It was not EPA's intention to create any additional reporting requirements beyond those currently required for RFG and anti-dumping purposes. The existing reports will be streamlined and/or modified as necessary to ensure their clarity and the elimination of any incremental reporting burdens.

**(E) Because there are no downstream standards, enforcement should track Subpart E, a similar annual averaging program that is refinery-based. Another commenter stated that there is no need for anyone except the producer or importer to retain records given the lack of downstream standards.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 4

National Petrochemical and Refiners Association (IV-D-33) p. 16

**Response to 6.12(E)(1):** The commenter suggests that since this is a refinery/importer-based program there is no need for downstream parties to retain records. EPA agrees and therefore, has eliminated the requirements for records to be retained by any parties other than refiners and importers in today's final rule.

**(F) EPA should not adopt the proposed sampling compliance certification.**

- (1) A signed certification is already required under 80.770(c)(1), and therefore 80.735(c) is redundant. If EPA decides to keep 80.735(c), then it should be moved to 80.770 so that all reporting requirements are in one location.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 16

- (2) EPA should remove paragraph 80.730(c) that requires the owner/operator to include in a compliance report a special certification statement related to sampling compliance. Existing liabilities and non-compliance provisions provide EPA with adequate certification and enforcement utility.

Letters:

Phillips Petroleum Company (IV-D-20) p. A-5

**Response to 6.12(F)(1) and (2):** The commenter suggest that the sampling compliance certification under 80.735(c) is redundant and unnecessary in light of other regulatory requirements and liabilities. EPA agrees and has eliminated that provision from the final rule.

**(G) The rule should not require retention of sample portions for the most recent 20 samples collected because a refiner that produces one batch of gasoline per year would be required to retain a sample portion for 20 years.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 4

**Response to 6.12(G)(1):** The commenter suggests that the requirement to retain portions of the most recent 20 samples could result in samples being retained for an extraordinarily long period of time if the refinery produces only one batch per year. EPA agrees and thus has

revised this provision to require sample retention for no more than 90 days in any case. This same change is being made to the Tier 2 rule as well.

**(H) EPA does not have the authority to set the parent corporation liability standard found in section 80.795(a)(3) of the proposed rule.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 4

**Response to 6.12(H)(1):** The Clean Air Act, in §§ 211 and 301, provides very broad authority for the Administrator to create necessary fuels regulations and appropriate means to enforce them. Pursuant to this authority, the Agency has created presumptive liability schemes in our fuels programs, which have been consistently upheld by the courts. Parent corporation liability is derived from our presumptive liability scheme. It is also consistent with our interpretation of the RFG regulations, as stated in the RFG and CG Questions and Answer Document.

**(I) Section 80.785(b) is unnecessary because it is not possible for a person to "cause another person to commit" an averaging violation. Another commenter argued that this provision and similar provisions in sections 80.795(a)(2) and (b)(2) should be removed because they are not applicable to RFG or anti-dumping subpart in EPA's rules and will only create confusion amongst these similar programs.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Koch Petroleum Group (IV-D-36) p. 4

National Petrochemical and Refiners Association (IV-D-33) p. 16

**Response to 6.12(I)(1):** The commenter suggests that it is not possible for another party to cause a party to commit an averaging violation and therefore, prohibitions and liability for such actions are not appropriate in this rule. EPA disagrees. While it is unlikely that this will occur, it is possible for two parties to act in collusion whereby one party improperly shifts or sells gasoline to another party for incorporation in the second party's compliance calculations which leads to an averaging violation when the compliance calculations are corrected. Similarly, it is possible that a downstream party, for monetary reasons, might induce a refiner to produce noncomplying fuel, which might be less expensive to produce, and to sell that less expensive fuel to the downstream party. In these cases, EPA believes the collusive parties would have caused the refiner to commit an averaging violation. Additionally, these same requirements are contained in the Tier 2 final rule for similar standards and EPA is currently standardizing its rules where appropriate.

The Agency disagrees with the commenters' additional argument that inclusion of the causation liability in the toxics rule would cause confusion between programs because such causation liability does not exist in the RFG and CG programs. Causation liability has been an integral part of EPA's typical presumptive liability schemes, including those found in the RFG and CG programs. EPA's effective, multi-party presumptive liability approach established under our fuels programs has consistently been based on the fact that any of the parties in the distribution system could have caused the violation. Further, the Tier 2 gasoline sulfur rule specifically imposes causation liability similar to that found under the toxics rule. (See the preamble to the final Tier 2 gasoline sulfur rule, 65 FR 6813.) Because of this prior history of causation liability within the presumptive liability schemes of numerous fuels programs, the Agency does not believe that specifically including causation liability in the toxics rule will cause confusion.

**(J) Baseline information may qualify as CBI for disclosure purposes.**

- (1) One commenter notes that EPA-approved benzene baseline and batch data for each refinery should be considered confidential business information.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 15-16

**Response to 6.12(J)(1):** We agree that certain information in a refiner's baseline submission may be considered Confidential Business Information (CBI). Such information would include batch and total gasoline volume information, batch data, and seasonal fuel parameter and emissions information. However, it is possible that the annual average toxics baseline emissions values determined for this rule may not be considered CBI. The annual average baseline emissions under the anti-dumping program were not considered CBI. Nonetheless, a refiner should label all information in the baseline submission it deems to be CBI as such.

**6.13: Economic Impacts**

**6.13.1: Costs**

**(A) The proposed rule is not cost effective. (See related comments under Issue 6.6.)**

- (1) No cost effectiveness analysis has been conducted, and no benefit-cost analysis has been completed. EPA has not established the need for, nor any benefits from, these more stringent standards. The proposed rule fails to take into account the impact of other regulatory initiatives relating to gasoline composition and other factors that could result in costs to refiners, and therefore EPA cannot proceed without analyzing the costs and benefits of the proposed rule. One commenter stated that because the costs will exceed \$100 million, EPA is required to do an analysis under UMRA. Some of these commenters also argue that EPA must publish another notice for comment after completing this type of analysis.

Letters:

American Petroleum Institute (IV-D-21) p. 1-2

ExxonMobil (IV-D-16) p. 2

Marathon Ashland Petroleum, LLC (IV-D-15) p. 1-2, 4-5

Murphy Oil Corporation (IV-D-17) p. 3-4

National Petrochemical and Refiners Association (IV-D-33) p. 2

Phillips Petroleum Company (IV-D-20) p. 2

**Response to 6.13.1(A)(1):** As described in the Technical Support Document, the environmental benefit associated with our anti-backsliding program is that it ensures the current overcompliance exhibited in both RFG and CG will be preserved. This overcompliance will amount to approximately 40,000 tons of toxics emissions in year 2007. Absent this rulemaking, there is a possibility that some or all of this overcompliance could fail to manifest in 2007.

In the Notice of Proposed Rulemaking, we proposed a benzene content requirement in order to capture the significant amount of overcompliance above and beyond the requirements of the federal reformulated gasoline and anti-dumping programs. Our preliminary cost analysis predicted that the proposal would impose only negligible costs. The Agency asked for comment on two other forms of the today's rule: benzene emissions performance and toxics emissions performance.

In response to these comments, and based on more detailed refinery modeling performed for this rule, we are finalizing a toxics performance requirement instead of a benzene content requirement. The Agency's general rationale is twofold: a toxics performance requirement captures a larger amount of the overcompliance with the existing standards and imposes less costs on the refining industry than the proposed benzene content requirement.

Even though this program does not require new capital investments or changes in refinery operations, and thus should pose no additional burden on refiners, we have included a number of compliance flexibilities, such as deficit and credit carryforward provisions, and a compliance margin, to offset unexpected or unusual variances in the gasoline quality of a refinery (or importer). For a more detailed discussion of the refinery modeling for this rule, please see Chapter 7.C. of the Technical Support Document.

The results of our refinery modeling for a benzene anti-backsliding program showed negligible costs to industry. Additional analysis for RFG and CG under a toxics performance requirement showed that today's action will impose only negligible costs. Because today's rule will result in only negligible costs far less than \$100 million in any one year to State, local, and tribal governments, in the aggregate or to the private sector, the Agency is not required to do an analysis under UMRA. We believe that the analysis of our costs on today's program is sufficient and we are not required to publish a supplemental notice for comment on the issue of costs from this program.

- (2) EPA's claim to the contrary notwithstanding, EPA has been given information demonstrating that the proposal will have significant costs. MAP presented EPA with benzene reduction costs in January 2000. EPA participated in the National Petroleum Council gasoline and diesel producibility study and is therefore familiar with the costs to refiners and the loss of flexibility associated with maintaining RFG toxics performance under an MTBE ban or reduction.

Letters:

Marathon Ashland Petroleum, LLC (IV-D-15) **p. 1-2**

**Response to 6.13.1(A)(2):** When EPA met with MAP in January 2000, the only confidential business information on costs supplied to EPA at that time was on various benzene cap programs, not a toxics anti-backsliding program. For more information on costs due to a toxics anti-backsliding program please see the TSD, Chapter 7.C and the response to 6.13(A)(1). For a response to comments on the costs to refiners and the alleged loss of flexibility associated with maintaining RFG toxics performance under an MTBE ban or reductions, please see response 6.6(D)(1).

- (3) In the 1994 RFG rule, EPA stated that the main control strategies for toxics, benzene and aromatics are very expensive, in excess of \$100 million/CI. EPA could have imposed more stringent air toxics requirements on RFG, but expressly declined to do so. Rather, EPA found that the costs of doing so would far exceed the costs incurred in other programs for the same benefit.

Letters:

American Petroleum Institute (IV-D-21) **p. 3**

Chevron (IV-D-34) **p. 1**

Marathon Ashland Petroleum, LLC (IV-D-15) **p. 4**

Murphy Oil Corporation (IV-D-17) **p. 4-5**

Phillips Petroleum Company (IV-D-20) **p. 2**

**Response to 6.13.1(A)(3):** The RFG program established a toxics emission performance standard for RFG, and an anti-backsliding toxics standard for conventional gasoline based on 1990 baseline toxics levels for each refinery. On average, refiners have overcomplied with the toxics emissions performance standards for both RFG and CG. Overcompliance of RFG standards resulted in substantial toxics reductions beyond what was required by law. We have estimated that the reduction in the total toxics inventories due to overcompliance was approximately 70 thousand tons in 1996 and will be approximately 40 thousand tons in 2007 (see TSD). The cost estimates in the 1994 RFG rule have obviously proven to be excessive given the fact that refiners have voluntarily reduced their benzene levels below the RFG requirements. The refinery modeling that was completed for the toxics performance requirement shows that we can capture current overcompliance at negligible costs. For a more detailed



discussion of the refinery modeling for this rule, please see Chapter 7.C. of the Technical Support Document.

**(B) The proposed rule places an economic penalty on those refiners that overcomplied during the baseline period. (See related comments under Issue 6.6.)**

- (1) EPA states that no refinery capital expenditures or operational changes will be needed to comply with this proposal because it requires refineries to continue what they did in 1998-99. However, there are market factors which may require refiners to change their operations to comply with the proposed regulation. For example, gasoline benzene levels are dependent on chemical market economics for benzene production and recovery. A depressed chemicals market will increase refinery costs to remove benzene. Such factors will increase compliance costs for refiners with large RFG production volumes, very low benzene baselines, and little operational flexibility to further reduce benzene levels. Initial estimates suggest that an incremental baseline reduction of only 0.2% for these refineries can be in the range of 3-4 cents/gallon.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 3  
Sunoco, Inc. (IV-D-23) p. 1-2

**Response to 6.13.1(B)(1):** Since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of fuel than they would under the proposed benzene content standard. With regard to refineries that achieved low emissions levels due to benzene extraction, we do not believe there is any basis for expecting the benzene market to change in such a way that warrants setting a minimum toxics performance level. In fact, projections of the benzene market suggest continued growth (see TSD, Chapter 7.A.3).

We do realize that even for a toxics anti-backsliding program, unusual situations may happen that can significantly affect refinery operations, and which could cause the refinery to be out of compliance with its requirement. To this end, we proposed and are finalizing a one-year deficit carryforward provision. This will allow a refinery to exceed its anti-backsliding toxics requirement for one year. In the next year, it must make up the deficit as well as be in compliance for that year. Additionally, though not proposed, we are also including a one-year credit carryforward provision. Under this provision, a refinery producing gasoline that is cleaner than required by its toxics anti-backsliding requirement may bank the credits from overcompliance to cover any deficit in the following year.

Although we did not propose to include a compliance margin on the fuel benzene content requirement in the NPRM, additional information gleaned from refinery modeling and comments has led us to include a compliance margin on the TPS being finalized today. Though refinery modeling shows that post-2004 RFG

total toxics and CG exhaust toxics emissions in PADDs I and III will, on average, be lower than during the baseline period, the difference is not large enough to ensure that refiners won't have to go beyond what our anti-backsliding requirements strictly call for. Also at this time, we do not know whether the lower toxics emissions predicted by refinery modeling is true of gasoline in other PADDs. Thus we have provided refiners with compliance flexibility in several forms.

- (2) Some refiners remove most of the benzene from their reformat streams. The only way to further lower benzene content is to remove it from the catalytic cracker gasoline stream, but the science of doing so is not well understood. The economic penalty for this control will likely be extreme and still have only a minimal effect on actual benzene levels.

Letters:

Citgo Corporation (IV-D-5) p. 2

Phillips Petroleum Company (IV-D-20) p. 3

**Response to 6.13.1(B)(2):** Since we have switched to a toxics performance requirement for this final rule, refiners will have more flexibility to address fluctuations in the benzene content of fuel than they would under the proposed benzene content standard.

Our analysis of refinery reports submitted for the years 1997 through 1999 showed little difference in fuel benzene levels between the years, or for either type of gasoline, RFG or conventional. Since refiners would have already been planning ahead for the implementation of the Phase II RFG program in 1999, one would have expected a difference in either RFG or CG in 1999 compared to 1997 or 1998 if Phase II RFG were to have an impact on benzene levels. Therefore during the time that refiners will have to comply only with the Phase II RFG, we do not believe that benzene levels will increase significantly.

In addition, our refinery modeling comparing the year 1999 as a base case year to the year 2005 as the reference case year (accounting for expected changes in fuel properties due to Phase II RFG, Tier 2 low-sulfur gasoline and 15 ppm low-sulfur diesel fuel (based on the proposed HD07 rule)) showed that for CG, the toxics emissions are likely to remain at or below 1999 levels and that for RFG, refiners are likely to be able to meet or exceed the new toxics baseline requirements. Therefore, on average we do not anticipate that benzene levels will increase significantly for refiners during the implementation of these future fuels programs. Based on the refinery modeling and analysis presented in Chapter 7.C of the TSD, we believe that the new toxics performance requirement finalized in today's action will impose negligible costs on the refining industry for both RFG and CG.

Because benzene levels are not expected to increase significantly during the early part of the Phase II RFG program and because the toxics emissions performance of both RFG and CG is expected to meet or exceed 1999 levels

after implementation of Tier 2 and low-sulfur diesel controls, we do not believe that it will be necessary for refiners to remove benzene from catalytic cracker gasoline streams in order to meet the requirements of today's toxics anti-backsliding program.

**(C) Reducing benzene content reduces the quantity of premium gasoline a refiner can economically produce.**

- (1) Benzene is a major component in high octane gasoline. Reducing benzene results in reduced octane gasoline, and cuts overall premium gasoline production. Another commenter similarly noted that by limiting refiner flexibility to increase gasoline production, EPA will jeopardize gasoline supplies as gasoline demand is projected by DOE to increase annually by 1.9%.

Letters:

American Petroleum Institute (IV-D-21) p. 2, 5  
Gary Williams Energy Corporation (IV-D-3) p. 2

**Response to 6.13.1(C)(1):** Contrary to the commenters claims that benzene is a major component in high octane gasoline, the 1996 API/NPRA survey seems to indicate otherwise. According to the 1996 API/NPRA survey, Table 1 indicates that for the total U.S., excluding California, CG premium has 16 percent less benzene than CG regular, VOC Region 1 RFG premium has 11 percent less benzene than VOC Region 1 RFG regular, and VOC Region 2 RFG premium has 1 percent less benzene than VOC Region 2 RFG regular.

Nevertheless, because we have decided not to control incremental volumes in today's final rule, refinery concerns regarding increased gasoline production due to increased demand in future years is no longer a concern.

**(D) Small refiners will have difficulty complying with this rule given the need to comply with the MTBE and gasoline sulfur rules at the same time.**

- (1) Small refiners would have to purchase additional equipment to ensure compliance with all three sets of standards. It is not clear how they would be able to obtain financing for the required equipment when all small refiners would have to meet these standards in the same timeframe.

Letters:

U.S. Small Business Administration (IV-D-26) p. 3

**Response to 6.13.1(D)(1):** The results of our refinery modeling for the toxics performance anti-backsliding requirement indicate that the costs of this program will be negligible. We do not believe that additional significant equipment will be required to comply with today's toxics performance anti-backsliding requirement for small refiners. Therefore no extra lead time is required to comply with a today's final rule. Thus, beginning with the 2002 calendar year, a refinery's or

importer's annual average toxics emissions performance, determined separately for RFG and CG, cannot exceed its baseline toxics emissions performance, determined over the three years 1998-2000. The first report associated with today's rule will be due February 28, 2003, the same date as the reformulated gasoline and anti-dumping reports are due for calendar year 2002.

- (2) Small refiners may be forced to rely on new or unproven performance additives, or further change refinery production configurations.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 2

**Response to 6.13.1(D)(2):** We do not agree that this rule, in connection with future controls, will force small refiners to change their formulations or production configurations. Our refinery modeling for a toxics performance requirement indicates that there will no significant impact on small or large refiners from the Phase II RFG program, Tier 2 low-sulfur gasoline program, and/or the 15 ppm low-sulfur diesel rule (based on the proposed HD07rule).

We did not conduct a detailed analysis of potential MTBE controls because we are still currently working on our MTBE proposal and it would be premature to consider the possible impacts from this effort. Any toxics emissions impacts associated with a phase-down or phase-out MTBE under the Toxic Substances Control Act (TSCA) will be considered in that rulemaking.

**6.13.2: Benefits**

**(A) EPA has failed to demonstrate any environmental benefit for moving forward with this regulation.**

- (1) Commenter fails to understand the logic or the need for this regulation. Moreover, EPA has not demonstrated that refiners will fail to continue to over-comply even without this rule.

Letters:

Marathon Ashland Petroleum, LLC (IV-D-14) p. 1, 4

**Response to 6.13.2(A)(1):** The statute requires that we adopt controls for at least benzene and formaldehyde that represent greatest degree of emission reductions achievable. We believe that the anti-backsliding requirement being promulgated today is achievable because refiners are already meeting these levels. A failure to adopt at least this level of toxics control would therefore be inconsistent with the statutory mandate.

We are not under an obligation to prove that refiners will fail to overcomply in the future with the current RFG and anti-dumping toxics standards. In establishing an anti-

backsliding program, we are only protecting the environment against the possibility that the overcompliance exhibited in 1998 - 2000 will degenerate in the future through increases in fuel benzene content or changes in other fuel properties. If in reality no changes to fuel properties occur that collectively would place upward pressure on toxic emissions, our toxic performance standard will impose no constraints on refiners.

As described in the Technical Support Document, the environmental benefit associated with this rule is that it ensures that the current overcompliance exhibited in both RFG and CG will be preserved. We estimate that this preserved overcompliance will amount to approximately 40,000 tons of toxics emissions in year 2007. Absent this rulemaking, there is a possibility that some or all of this overcompliance could fail to manifest in 2007.

- (2) EPA acknowledges in the NPRM that the proposal is not expected to reduce emissions beyond what is currently being achieved. One must conclude from this assessment that public health is already being adequately protected. In fact, EPA's "Latest Findings on National Air Quality: 1999 Status and Trends" states that benzene levels in 84 urban areas dropped 39% from 1993 to 1998, and EPA anticipates a 75% drop in key toxics from highway vehicles by 2020.

Letters:

American Petroleum Institute (IV-D-21) p. 1, 4  
American Petroleum Institute (IV-F-1) p. 33  
ExxonMobil (IV-D-16) p. 1  
Murphy Oil Corporation (IV-D-17) p. 4  
Phillips Petroleum Company (IV-D-20) p. 2

**Response to 6.13.2(A)(2):** It is true that ambient benzene concentrations have dropped in recent years. Future reductions in total HC emissions due to the rollout of new vehicle, engine, and fuel standards are predicted to result in continuing reductions in toxics emissions. For these reasons and others, we have determined that the most appropriate toxics control program to implement at this time is one that preserves the reductions resulting from overcompliance with the RFG and anti-dumping standards.

However, despite the expectation that programs currently in place will reduce inhalation exposure to gaseous air toxics from highway mobile sources by about 50% in 2007 and 60% in 2020, relative to 1996 levels, mobile sources will continue to be major contributors to exposure and risk from outdoor sources of air toxics. Unfortunately, there are many data gaps which prevent us from fully characterizing risks. As we address these data gaps over the next few years we will evaluate what additional controls may be needed to adequately protect public health. As a result we have decided to include a commitment in this rulemaking to conduct further investigation into these issues in a Technical Analysis Plan, and to promulgate additional toxic emission standards by July, 2004 if we deem them appropriate.

- (3) According to EPA's "Summary of Peer Reviews of Motor Vehicle-Related Air Toxics Study", one independent scientist stated that "there appears to be no cause for a public health concern for cancer from exposure to mobile vehicle exhaust, and it would seem that the agency could use its resources more productively on matters of higher concern."

Letters:

American Petroleum Institute (IV-D-21) p. 1  
American Petroleum Institute (IV-F-1) p. 34  
Murphy Oil Corporation (IV-D-17) p. 5

**Response to 6.13.2(A)(3):** We do not believe that the existing data on toxics emission rates from vehicles and engines, correlations between fuel properties and toxics emissions, ambient concentrations of toxic pollutants and exposure to those pollutants is sufficiently robust for us to conclude that no public health concern exists. As a result we have established a Technical Analysis Plan to further investigate these issues. In the meantime we are promulgating an anti-backsliding program that is designed to preserve the emission benefits associated with overcompliance with the RFG and anti-dumping programs, and that represents the greatest degree of emissions reductions achievable in the short term.

**6.14: Other Fuel Issues**

**6.14.1: Anti-dumping Program**

**(A) EPA should repeal the antidumping requirements for CG after the proposed benzene standard and Tier 2 sulfur controls go into effect.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Marathon Ashland Petroleum, LLC (IV-D-15) p. 8  
Sunoco, Inc. (IV-D-23) p. 3

- (2) With the MSAT standards and the Tier 2 rule, the anti-dumping regulations will be unnecessary. Compliance with the Tier 2 and benzene standards will meet or exceed the NO<sub>x</sub> and exhaust toxics specifications required by the antidumping regulations, allowing refiners to save on analytical testing and recordkeeping.

Letters:

American Petroleum Institute (IV-D-21) p. 9  
Citgo Corporation (IV-D-5) p. 4  
ExxonMobil (IV-D-16) p. 9-10  
Phillips Petroleum Company (IV-D-20) p. 5

Placid Refining Company, LLC (IV-D-2) p. 3

- (3) If the new anti-backsliding gasoline benzene regulations are effective in 2002, then the anti-dumping exhaust toxics regulations should be repealed effective January 1, 2002. However, the reports for 2001 anti-dumping compliance should still be submitted to EPA in 2002.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 12

**Response to 6.14.1(A)(1), (A)(2), and (A)(3):** We are not repealing the anti-dumping program. The anti-dumping program is required by the Clean Air Act and we cannot ensure that today's requirements and the Tier 2 gasoline sulfur requirements will exactly duplicate the anti-dumping program. For example, the gasoline sulfur standards do not guarantee that all conventional gasoline will meet the individual NOx performance standards because some anti-dumping individual baselines have even lower average sulfur levels than the gasoline sulfur program will require. Additionally, the flexibilities provided in today's rule, such as deficit and credit carryforward, could cause the anti-backsliding toxics emissions performance for certain refineries to exceed their anti-dumping toxics performance requirement in a given year. Finally, because the anti-dumping statutory baseline becomes a part of a refinery's anti-dumping compliance determinations when the refinery's annual production exceeds its 1990 baseline volume, depending on the refinery's baseline, it's standard for that year could be more stringent than the anti-backsliding requirement.

**(B) Opposes NPRA suggestion to eliminate the CG antidumping program because it is vitally important that conventional gasoline be protected from increased benzene levels that could result from the proposed program.**

- (1) Instead, CG benzene limits should be set at 1998-99 baseline levels for each refinery.

Letters:

Bluewater Network (IV-D-29) p. 2

**Response to 6.14.1(B)(1):** See response to 6.14.1(A)

**(C) EPA should consider eliminating the anti-dumping requirements only if there are no negative gasoline quality, vehicle emissions or air quality impacts.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Tosco (IV-D-41) p. 4

**Response to 6.14.1(C)(1):** See response to 6.14.1(A)

#### **6.14.2: Other Fuel Specifications**

**(A) EPA should address other fuel components in addition to benzene.**

- (1) First, EPA should cap the Distillation Index at 1200 which would further reduce benzene emissions during cold start. EPA should also cap levels of polynuclear aromatic compounds in diesel fuel at 2% by volume to reduce tailpipe benzene emissions. Finally, EPA should adopt the rest of the recommendations in the World Wide Fuels Charter.

#### Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 5-6**

Alliance of Automobile Manufacturers (IV-F-1) **p. 63**

**Response to 6.14.2(A)(1):** Controls on the Distillation Index (DI) of gasoline may result in reductions in HC emissions, which in turn would reduce toxics emissions. However, toxics are a very small portion of total HC emissions, so that controlling DI for the purposes of reducing toxics emissions would be highly cost-ineffective. We received a petition in January 1999 requesting that we control DI for the purposes of reducing tailpipe HC emissions<sup>14</sup>. We intend to conduct a more thorough review of that petition early in 2001 and will at that time determine if DI controls are warranted.

As described in Chapter VII of the the Draft Technical Support Document, benzene emissions from gasoline-powered vehicles far exceeds that from diesel vehicles; in 1997, highway emissions of benzene from gasoline-powered vehicles were estimated to be over 50 times higher than diesel-based emissions of benzene. Insofar as benzene represents a toxic pollutant meriting control, therefore, it is much more efficient to target benzene emissions from gasoline-powered vehicles. Regardless, we do not currently have any correlations between aromatic compounds in diesel fuel and the associated benzene emissions, and so are not in a position to place controls on polynuclear aromatic compounds in diesel fuel.

The World Wide Fuels Charter represents a selection of fuel specifications which manufacturers have decided would maximize the efficient operation of their vehicles and engines. The EPA has not received a formal petition requesting that all elements of the World Wide Fuels Charter be adopted into regulation. Certainly we are aware of no analyses indicating how adoption of all elements of the World Wide Fuels Charter would affect emissions of toxics pollutants. However, we continue to evaluate the benefits and cost-effectiveness of various

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<sup>14</sup> "Petition To Regulate Gasoline Distillation Properties," submitted by DaimlerChrysler Corporation, Ford Motor Company, General Motors Corporation, and the Association of International Automobile Manufacturers. January 27, 1999. EPA Air Docket A-97-10, document number II-G-286.



fuel control options, and future actions may include new or amended fuel controls as we deem them appropriate.

**(B) EPA fails to account for the roles of toluene, xylene and higher aromatics in the formation of benzene.**

- (1) These compounds are precursors to benzene, and can be readily formed by the catalytic converter. These compounds also are usually deliberately synthesized in the fuel to increase fuel octane.

Letters:

NESCAUM (IV-D-9) p. 8-9

**Response to 6.14.2(B)(1):** We agree that benzene analogs such as toluene and xylene will contribute to the formation of benzene emissions. However, we do not currently have any means for correlating specific changes in the fuel concentration of these compounds with benzene emissions. In addition, the available information on the concentration of these benzene analogs in gasoline is quite limited. The Complex Model does permit us to estimate the impacts of changes in total aromatics content on benzene emissions, though as discussed in our response to issue 6.5.3(B)(1), the impact of aromatic compounds on benzene emissions is far less than the impact of fuel benzene content on benzene emissions. It was for this reason that we proposed controls on fuel benzene content in our NPRM.

Still, we recognize that properties other than fuel benzene content can affect emissions of toxics compounds. This is one reason that we have decided to finalize a toxic performance requirement instead of the benzene content standard we proposed. As a result, it will not be necessary to account specifically for the role of toluene and xylene in the formation of benzene emissions, but instead such impacts will be taken into account implicitly when refiners comply with their 1998 - 2000 toxics emissions baselines.

**(C) EPA should expand the rule to include all aromatic compounds in gasoline.**

- (1) Lowering aromatic levels in gasoline will significantly reduce these pollutants, as well as directly reduce CO<sub>2</sub> emissions. This is especially important in the context of a likely national phase-out of MTBE (which the commenter supports). Without MTBE, refiners are likely to consider increasing aromatic content to replace octane loss. EPA should adopt an anti-backsliding requirement for all aromatics that mirrors the approach taken for benzene. Another commenter raised general concerns about the potential for increased toxics from other sources with a phase-out of MTBE.

Letters:

Bluewater Network (IV-D-29) p. 1-2

Michigan Environmental Council (IV-F-1) p. 68

**Response to 6.14.2(C)(1):** The EPA is committed to ensuring that any change in the regulatory requirements regarding MTBE are promulgated in such a way that the current and predicted future emission benefits of overcompliance with the RFG and anti-dumping standards are preserved. The anti-backsliding program that we are finalizing today will apply even if MTBE is phased-out. Although our anti-backsliding program does not place controls on the benzene or aromatic content of the fuel specifically, it does ensure that toxics emissions from both RFG and CG can be no higher than they were in 1998 - 2000. As a result we do not believe it is necessary to place individual controls on both the benzene and aromatic contents of gasoline. Note that the forthcoming rulemaking on the MTBE phaseout will address the issue of toxics emissions in the context of octane corrections that may be necessary if MTBE is phased-out.

**(D) EPA needs to evaluate fuel control options to regulate other toxic compounds that contribute to unacceptable health risks, such as 1, 3-butadiene, formaldehyde, and aromatics.**

(1) Commenter provides no detailed analysis supporting this point.

Letters:

NESCAUM (IV-D-9) p. 7

**Response to 6.14.2(D)(1):** As described in the preamble, we have determined that an anti-backsliding program which preserves the toxics overcompliance benefits exhibited in 1998 - 2000 is most appropriate for this rulemaking. The most comprehensive approach to preserving those overcompliance benefits is to ensure that toxics emissions, as measured by the Complex Model, are no higher in the future than they were in 1998 - 2000. Using this approach we capture not only benzene emissions, but also 1,3-butadiene, formaldehyde, acetaldehyde, and polycyclic organic matter. Currently we do not have any precise means for evaluating the impact of fuel properties on emissions of aromatic compounds, so we cannot place controls on aromatic compounds specifically at this time. However, we believe that our anti-backsliding program, with its focus on toxics performance, places controls on the primary toxic compounds that are emitted from gasoline-powered vehicles and engines.

**(E) If not well coordinated, conflicting fuel requirements could reduce refinery flexibility without providing added environmental benefits.**

(1) EPA should carefully coordinate this proposal with other rulemakings such as MTBE, new renewable fuel requirements, and other toxics/aromatics limits on RFG. The commenter noted that EPA specifically must coordinate the anti-backsliding provision with other proposals that would add more stringent RFG aromatics and toxics standards.

Letters:

Tosco (IV-D-19) p. 2

**Response to 6.14.2(E)(1):** We have evaluated the costs and benefits of our anti-backsliding program by taking into account all promulgated programs. This approach is consistent with the approach taken for past rulemakings; whenever a new control program is proposed, it must be evaluated within the context of the other controls programs that we know will be in effect at the same time.

For potential future control programs which are not yet promulgated and thus have yet to be clearly defined, such an evaluation is very imprecise and in fact can lead to erroneous results if the final program differs substantially from the proposed program. It is incumbent upon authors of control programs which have yet to be finalized to calculate the costs and benefits of their program in the context of those control programs that are already promulgated. As a result, we have not evaluated the costs and benefits of our anti-backsliding program under the assumption that MTBE will be phased-out, a renewable fuel requirement will be implemented, or other toxics or aromatics limits will be placed on gasoline. All of these potential programs are as yet unspecified and thus cannot form the basis of a comparative analysis. On the contrary, when evaluating the impacts of an MTBE phaseout, for example, EPA must do so assuming that the anti-backsliding program for toxics is already in place, since the program in today's final rulemaking will be promulgated before any MTBE phaseout program is finalized. You should review the analyses in the forthcoming MTBE phaseout rulemaking to determine how we have evaluated the coincident impacts of our anti-backsliding program and the MTBE phaseout program on costs and environmental benefits.

**6.15: SBREFA and Small Refiner Flexibility Options**

**(A) EPA should initiate a SBREFA process.**

- (1) This rule is expected to impose significant costs on small refiners already subject to Tier 2 gasoline requirements. Also, the "no-cost" analysis does not factor in the anticipated MTBE phase-out or that other regulations may disproportionately impact small refiners. [See related comments under Issues 6.6 and 6.13.1.]

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 3  
Placid Refining Company, LLC (IV-D-2) p. 1

**Response to issue 6.15(A)(1):** EPA disagrees with this comment. The Agency performed refinery modeling for this rulemaking. Based on the results of the refinery modeling, the Agency concluded that this rule is not expected to impose significant costs on refiners, large or small, after Phase II RFG, Tier 2 low sulfur

gasoline and the heavy-duty vehicle low sulfur diesel fuel are taken into account. MTBE phase out, or phase down, is too uncertain and unspecified at this time. When and if a rule on MTBE is proposed, the new baseline requirements established in this rule will be taken into consideration when developing cost estimates for that rule.

- (2) SBREFA requirements are applicable and must be engaged if small business refiners are held to some future benzene standard established using an inappropriate baseline time period during which EPA required oxygenate use, which now appears likely to be followed by a period in which oxygenate use will be prohibited or curtailed.

Letters:

Kern Oil & Refining, Inc. (IV-D-31) p. 4-5  
Western Independent Refiners Association (IV-D-40) p. 3

**Response to issue 6.15(A)(2):** This rule will not impose a significant impact on a substantial number of small entities (see response to 6.15(A)(1)). Therefore, the SBREFA/RFA requirements for convening a panel and preparing a regulatory flexibility analysis are not triggered by this rulemaking.

**(B) Small refiners should be exempt from the proposed regulation.**

- (1) The total volume of small refiners' gasoline is a very small percentage of the total U.S. consumption. Any impact of this proposal on small refiners will be disproportionately greater than on large refiners, and by EPA's own admission, existing controls are reducing benzene emissions.

Letters:

Placid Refining Company, LLC (IV-D-2) p. 2

**Response to issue 6.15(B)(1):** EPA does not dispute the fact that small refineries do not produce a large portion of total US domestic consumption. However, as described in the preamble, we are implementing an anti-backsliding program for toxics emissions that are expected to have only negligible costs. As a result we are applying the program to all refiners.

**(C) Supports an exemption from Phase I requirements for small refiners.**

- (1) Small refiners should be exempt from anti-backsliding standards until at least 2004 when EPA has completed further review. A one-step approach is important so that small refiners can plan investment, engineering and construction for a final standard. Phase-in approaches impose burdensome and unnecessary equipment installation and expenditure. Also, because small refiners contribute such a small fraction to the benzene problem or hot spots of pollution, there is no need to include them in the first phase.

Letters:

Gary Williams Energy Corporation (IV-D-3) p. 3

**Response to issue 6.15(C)(1):** This anti-backsliding rule will not require refineries to invest in new equipment. See our response to issue 6.13.1(D)(2).

- (2) EPA should defer consideration of any anti-backsliding standards for small refiners until 2003-04. A delay would allow EPA to study the impact of this rule on the balance of the industry and to understand its interaction with the gasoline sulfur rule and any MTBE phase-down.

Letters:

U.S. Small Business Administration (IV-D-26) p. 4

**Response to issue 6.15(C)(2):** EPA sees no reason to delay promulgation of these regulations. Refinery modeling conducted for the rule shows that for PADDs I and III, refineries are likely to incur only negligible costs.

**(D) EPA should provide for a two-year moratorium in the effective date for small refiners.**

- (1) Commenter provided no further supporting information or detailed analysis.

Letters:

Countrymark Cooperative, Inc. (IV-D-35) p. 3

**Response to issue 6.15(D)(1):** Since our anti-backsliding program is expected to impose only negligible costs on refiners and will require no capital investments, we do not believe that small refiners need additional time to prepare for compliance. Therefore, we have imposed the same effective date on all refiners.

**(E) Small refiners, and those refiners in Tier 2 geographic phase-in areas, should be allowed to establish their baseline periods after they reach compliance with the Tier 2 rule to account for potential baseline increases from Tier II compliance efforts.**

- (1) This is especially important for small refiners that install Tier II gasoline processing facilities prior to the 2008 deadline.

Letters:

Murphy Oil Corporation (IV-D-17) p. 2

**Response to issue 6.15(D)(1):** It is true that reductions in gasoline sulfur content tend also to result in increases in fuel benzene content due to the octane corrections that are often required in conjunction with desulfurization. However, according to the modeling described in Chapter VII of the Technical Support Document, on average toxics emissions are predicted to go down after the low sulfur standard

of 30 ppm is implemented. Since we are finalizing a toxics performance requirements instead of a benzene content standard, we do not expect the Tier 2 sulfur standard to impose a burden on refiners in terms of complying with their 1998 - 2000 toxics performance levels. Therefore, we have made no provision for any refiners to establish or re-establish their baselines after they reach compliance with the 30 ppm sulfur standard.

## ISSUE 7: TECHNICAL ANALYSIS PLAN

### (A) Supports EPA's decision to continue mobile source air toxics research.

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Association of International Automobile Manufacturers (IV-D-7) **p. 1**

- (2) Commenter supports EPA's proposed review of in-use air toxic emissions and its intention to consider additional measures in the future.

Letters:

Oregon Environmental Council (IV-D-9) **p. 1**

- (3) EPA should form a close partnership with HEI as it progresses with the TAP in order to provide an objective, independent resource to conduct the literature reviews and research necessary to assist EPA in determining which pollutants might be of public health concern.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 2**

Alliance of Automobile Manufacturers (IV-F-1) **p. 60-62**

- (4) The plan will provide the necessary research and analysis to help determine key sources of individual toxics and risks associated with these toxics.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 2**

Alliance of Automobile Manufacturers (IV-F-1) **p. 60**

- (5) However, EPA should include appropriate provisions addressing the research agenda for onroad and non-road sources in the proposed rule itself, otherwise there will be no explicit commitment to carry out this research. It is essential that EPA make a clear regulatory commitment to perform a comprehensive risk characterization and control determination regarding the collective emissions from road and non-road mobile sources and their fuels. EPA should follow through with the commitments to conduct a comprehensive assessment by placing them in the regulatory text of the final rule.

Letters:

NESCAUM (IV-D-10) **p. 3, 15-16**

NESCAUM (IV-F-1) **p. 24-26**

STAPPA, ALAPCO (IV-D-22) **p. 4**

STAPPA, ALAPCO (IV-F-1) p. 48-49

- (6) It is very important that EPA continues periodically to assess the effect that the proposed rules have on concentrations of mobile toxics nationwide and their impacts on public health, particularly children's health. Commenter agrees that a 3-year cycle for conducting ongoing assessments as proposed by a second commenter may be appropriate.

Letters:

American Lung Association of Michigan (IV-F-1) p. 74-75  
Michigan Environmental Council (IV-F-1) p. 69

**Response to issues 7(A)(1) through (6):**

It is important to note that the Technical Analysis Plan will not answer all relevant questions regarding the potential impacts of mobile sources on public health risks due to exposure to toxic compounds. The Technical Analysis Plan will provide important pieces of the key studies necessary to help evaluate potential risks associated with several important Mobile Source Air Toxics.

The Agency has made a regulatory commitment to reevaluate the need for and technical feasibility of additional controls on on-highway mobile sources in the 2003-2004 timeframe. That re-evaluation will, by necessity, require significant allocation of resources to attempt to fill data gaps identified in the Technical Analysis Plan. Over the past several years, the Agency has redirected significant resources to better understand ambient concentrations, exposure and risk associated with air toxics from all sources, including mobile sources. Examples include the Cumulative Exposure Project which estimated ambient concentrations of air toxics for the calendar year 1990, and the ongoing National Air Toxics Assessment National-Scale Analysis which analyzes 1996 ambient concentrations and inhalation exposures, and also conducts a characterization of inhalation risks. The Agency fully intends to use these important previous studies as screening tools to direct our future efforts in air toxics assessments. While it is inappropriate to place the Agency's Technical Analysis Plan as



articulated in the preamble into the actual regulatory document, the Agency commitment to the Technical Analysis Plan is real and its commitment to a future rulemaking is identified in the regulatory document.

The Agency plans to periodically update this assessment. This would include revisions to the National Toxics Inventory and the National-Scale Analysis based on newly available information.

The Agency has developed a strategy for research on environmental risks to children. For more information see: <http://www.epa.gov/nceawww1/risk2kids.htm>.

**(B) EPA fails to describe a research plan to continue to analyze MSATs.**

- (1) EPA has vaguely described data gaps without any serious plan to address those gaps. Without a detailed research plan, the Agency will be in the same position in 2004 as it is now. It is not even clear that the Agency requested funding for NATA activities. Commenter notes that EPA should not rely on the public to conduct this sort of research, and EPA should not settle for a handful of poorly funded and limited tests to comprise its understanding of MSATs and their health effects. Engine and vehicle manufacturers should be required to conduct emissions testing of on-road and nonroad engines to fill the information void.

Letters:

Consumer Policy Institute (IV-D-8) p. 3

**Response to issue 7(B)(1):** We have described a research plan to address the most critical data gaps in our understanding of the potential health impacts of public exposure to air toxics from mobile sources. We are coordinating work underway within and outside the Agency regarding exposure monitoring, modeling, and emissions characterization to provide the most comprehensive analysis available in the 2003-2004 timeframe. As discussed above (Response to issue on issue 7, section (A)(1) through (A)(6)),

The Agency is currently conducting a research plan to address the most critical data gaps in our understanding of the potential health impacts of public exposure to air toxics from mobile sources. We are coordinating work underway within and outside the Agency regarding exposure monitoring, modeling, and emissions characterization to provide the most comprehensive analysis available in the 2003-2004 timeframe. As discussed above (Response to issue on issue 7, section (A)(1) through (A)(6)),

These long-term efforts will provide substantial information on which to base future regulatory decisions.

**(C) EPA needs to modify the proposed treatment of non-road engines in the TAP.**

- (1) More information regarding air toxic emissions from non-road sources is needed. Commenter supports EPA's decision to develop a TAP to study non-road sources' contribution to ambient conditions because it makes sense to gather the needed information before acting to establish controls that might not be needed or would not be effective. Another commenter, however, argued that the timeframe for the TAP was inconsistent with analyzing emissions from non-road engines. There are a number of regulatory efforts that will affect emissions from non-road engines, and EPA should wait until those requirements take effect before attempting to study toxic emissions from non-road engines.

Letters:

Engine Manufacturers Association (IV-D-39) **p. 7, att.**

Engine Manufacturers Association (IV-F-1) **p. 16-17**

North American Equipment Dealers Association (IV-D-37) **p. 2**

**Response to issue 7(C)(1):** We currently have very little data regarding the emissions of toxic compounds from nonroad sources. We are in the process of gathering this information to assess the impact of these emissions on national and local inventories, ambient concentrations, exposures and ultimately on the risk to the public. We disagree that collection of this information can wait since the information is needed to determine the need for additional regulatory controls and to establish an understanding of baseline emissions.

- (2) More research is needed to identify feasible and cost effective control technologies applicable to the different and difficult demands of non-road engines. Commenter notes that any study of nonroad emissions must individually subcategorize the different categories of nonroad engines due to significant differences in engine structure, fuel, and performance.

Letters:

North American Equipment Dealers Association (IV-D-37) **p. 2**

- (3) At a minimum, small land-based SI engines should be excluded from further study because these sources are an insignificant source of toxic emissions, especially after considering recent regulatory controls on these sources.

Letters:

North American Equipment Dealers Association (IV-D-37) **p. 3**

**Responses to issues 7(C)(2) and (3):** We agree that additional research is needed to identify feasible and cost effective control technologies applicable to nonroad engines and we are currently looking into control area network devices, electronic control and feedback of engine operations, and exhaust gas re-circulation. As with our current regulatory program for non-road engines, an assessment of emissions from these engines is broken into categories based on the horsepower of the engine. We are not determining a priori which, if any engines will be excluded from further study.

**(D) VOCs are on the decline, and EPA should assume that other MSATs are on the decline as well. Therefore, EPA should consider whether it is cost-effective to carry on with a study of non-road engines as indicated in the proposal.**

- (1) If EPA sees a correlation between VOCs and other gaseous MSATs, then this proposed rule should be withdrawn. If EPA follows through with this rule and the study, then the MSATs should be studied and listed specifically in relation to each non-road engine category.

Letters:

North American Equipment Dealers Association (IV-D-37) **p. 3**

**Response to issue 7(D)(1):** In order to understand the potential public health impact of emissions of toxic compounds from nonroad engines we need to understand the specific chemical composition of the VOCs emitted and our Technical Analysis Plan includes work that will provide this information. MSATs studied will be determined based on the type of engine, horsepower of the engine tested, and operating conditions. These tests results will be extrapolated to other engines as appropriate.

**(E) EPA must also address indoor sources of toxics.**

- (1) From an exposure and risk perspective, toxics generated by indoor sources may likely be the most important health concern, especially since people spend nearly 90% of their time indoors. Because of their importance, it is imperative that EPA incorporate and integrate indoor air toxic exposures into the TAP, UAT, and NATA assessments.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 6**  
Alliance of Automobile Manufacturers (IV-F-1) **p. 63**

**Response to issue 7(E)(1):** We agree with the commenter that more research is needed. The Agency plans to assess the emissions of toxic compounds by indoor sources and ultimately to assess the overall impact of these sources on exposure. The Office of Radiation and Indoor Air is currently developing an indoor air toxics strategy.

**(F) EPA should address emissions toxicity of other fuel/vehicle types.**

- (1) EPA needs to include analysis of other vehicle/fuel types (Such as CNG) to evaluate toxics emissions from these vehicles. Policymakers often mistakenly assume alternative fueled vehicles have zero toxic emissions. More research on this issue is necessary so that future diesel technology can compete fairly with other alternative technologies in producing ultra-low engine emissions.

Letters:

Tosco (IV-D-41) p. 2

**Response to issue 7(F)(1):** We agree with the commenter that analysis of the toxic emissions from alternative fueled vehicles is important and we do not make the assumption that alternative fueled vehicles have no toxic emissions. We agree that additional research is necessary on this issue and we will follow the results of this work. The Department of Energy, Center for Transportation Research is doing work in this area, and has recently released an assessment of fuel cycle emissions for conventional and alternative fueled vehicles.<sup>15</sup> The Agency is evaluating the implications of this work.

**(G) The proposed rulemaking should have included a provision for monitoring of HAP emission reductions.**

- (1) By establishing a system of monitoring sites in cities throughout the country, and comparing actual HAPs monitoring data to predictions of emissions reductions, EPA could have the ability to evaluate the effectiveness of various control programs and strategies on an on-going basis. If such a proposal was included as part of this rulemaking, more information would be available in 2004. Another commenter generally supports increased monitoring of HAPs to assist EPA's ongoing evaluations of MSATs.

Letters:

Consumer Policy Institute (IV-D-8) p. 3  
Michigan Environmental Council (V-F-1) p. 69

**Response to issue 7(G)(1):** We agree that a system of monitoring sites throughout the country would be beneficial. We are providing funds for some such studies to be initiated in ten areas of the U.S. (Providence, RI, Seattle, WA, Tampa Bay, FL, Detroit, MI, San Jacinto, CA, Grand Junction, CO, Cedar Rapids, IA, Rio Rancho, MN, Charleston/Huntington, WV, and San Juan/Barceloneta, PR).

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<sup>15</sup>Winebrake et al. 2000. Fuel Cycle Emissions for Conventional and Alternative Fuel Vehicles: An Assessment of Air Toxics. Department of Energy, Center for Transportation Research, Argonne National Laboratory. Report No. ANL/ESD-44.

1. The Commission has been advised that the proposed site is currently zoned for residential use. The Commission is aware of the fact that the site is currently zoned for residential use and is aware of the fact that the site is currently zoned for residential use.

2. The Commission has been advised that the proposed site is currently zoned for residential use. The Commission is aware of the fact that the site is currently zoned for residential use and is aware of the fact that the site is currently zoned for residential use.

3. The Commission has been advised that the proposed site is currently zoned for residential use. The Commission is aware of the fact that the site is currently zoned for residential use and is aware of the fact that the site is currently zoned for residential use.

**ISSUE 8: PROPOSED FUTURE RULEMAKING**

**(A) EPA should include in the final rule a commitment to study MSATs and to promulgate further rules.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Puget Sound Clean Air Agency (IV-D-27) **p. 2**

**Response to issue 8(A)(1):** The rule satisfies the commenter's request.

**(B) Commenter concurs with EPA's assessment, reflected in section 80.825 that it may be appropriate to revisit emissions of HAPs from mobile sources in 2003.**

- (1) Commenter supports EPA's proposal to limit only benzene at the current time, and determine in 2003 whether additional controls may be warranted at that time.

Letters:

International Truck and Engine Corp. (IV-D-30) **p. 3**

**Response to issue 8(B)(1):** We agree. Although we have changed the control from a benzene content standard to a toxics performance standard, we have maintained the same general approach in setting a near-term anti-backsliding standard and committing to further investigate long-term controls.

**(C) Because they are significant contributors to MSATs, EPA should address in its future rulemaking the pollution from non-road engines and vehicles.**

- (1) As on-road standards are phased in, non-road sources will become increasingly significant contributors to MSATs. EPA needs to articulate a detailed plan for addressing these sources.

Letters:

Clean Air Network, et al (IV-D-38) **p. 4**  
Consumer Policy Institute (IV-D-8) **p. 4**

**Response to issue 8(C)(1):** The final rule articulates a plan to address emissions from nonroad sources.

- (2) EPA's intent to include those sources in the future should be stated clearly in the final rule.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 2  
STAPPA, ALAPCO (IV-D-22) p. 5

**Response to issue 8(C)(2):** The final rule clearly states the Agency's intent to address emissions from nonroad sources in a future rule.

**(D) EPA has predetermined the need for a rulemaking before it has evaluated the underlying facts.**

- (1) It is inappropriate to publish a schedule for future rulemaking after declaring EPA lacks sufficient information to support a future rulemaking. EPA should study toxics, determine the need for a rulemaking, and only then establish a timetable.

Letters:

American Petroleum Institute (IV-D-21) p. 5-6  
American Petroleum Institute (IV-F-1) p. 38  
ExxonMobil (IV-D-16) p. 8-9  
Koch Petroleum Group (IV-D-36) p. 3  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 2, 6-7  
Murphy Oil Corporation (IV-D-17) p. 6  
Phillips Petroleum Company (IV-D-20) p. 4

**Response to issue 8(D)(1):** EPA has sufficient reason for concern about the potential risks related to air toxics to commit to a future rulemaking in 2003-2004. However, our commitment to that future rulemaking is to reevaluate the need and technical feasibility of additional controls on mobile source air toxics. The action we take at that time will depend on the results of the research we will undertake as part of our Technical Analysis Plan. Based on that analysis, if no controls are deemed appropriate for on-highway vehicles or fuels, the rulemaking will confirm that the existing controls satisfy the criteria in Section 202(l)(2) of the Act.

- (2) EPA should not commit to a further rulemaking in 2004 until it analyzes the air toxics research conclusions to determine the need for another rulemaking. EPA should examine and assess new information regarding the proposed rule at some time in the future. However, the timing of such a review and the need for additional rulemaking should be based upon the Agency's continuing evaluation and monitoring of MSAT trends as well as the results of the TAP. The TAP should be completed and all information reviewed to determine if there is a need for any additional rulemaking. If a need is identified, a rulemaking can be initiated at that time. Otherwise, additional data from the studies may show there is no need for a rule, and yet the commitment would otherwise still exist.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) p. 9  
Alliance of Automobile Manufacturers (IV-F-1) p. 65

Engine Manufacturers Association (IV-D-39) p. 7-8, att.

**Response to issue 8(D)(2):** As discussed in the response to the previous issue, the commitment we are making in this rule is to reevaluate the need and technical feasibility of additional controls on mobile source air toxics. The Agency is not committing to promulgate new controls. If no controls are deemed appropriate for on-highway vehicles or fuels, the rulemaking will confirm that the controls promulgated at that time satisfy the criteria in Section 202(l)(2) of the Act. The decision to regulate will depend on the outcome of future data analysis and research.

**(E) EPA's proposal to engage in a future rulemaking cannot satisfy the requirements of CAA section 202(l).**

- (1) The text and the legislative history of the CAA contemplate that additional, aggressive action be taken to address MSATs in the current rulemaking.

Letters:

Environmental Systems Products (IV-D-25) p. 12-13

**Response to issue 8(E)(1):** The Agency agrees that a commitment to a future rulemaking does not satisfy its requirements under section 202(l). The Agency views its obligation under 202(l) as requiring a periodic reevaluation of the need for and technical feasibility of additional controls on motor vehicles.

**(F) EPA does not have the authority under section 211(c) or any other provision of the CAA to promulgate a rule establishing deadlines for future administrators to conduct rulemakings.**

- (1) The commenter points to several examples to document that where Congress intends for the statute to impose deadlines, Congress specifies the deadline in the statute. EPA cannot in this rulemaking do what Congress has specifically chosen not to do.

Letters:

American Petroleum Institute (IV-D-21) p. 6

**Response to issue 8(F)(1):** We disagree. The regulatory commitment in section 80.825 of the regulations is reasonable and entirely within EPA's authority. Nothing in the Clean Air Act limits EPA's discretion to set timetables for itself to complete non-mandatory regulatory actions, so long as those timetables are consistent with any mandatory statutory deadlines. One example of a similar regulatory deadline EPA has imposed on itself is codified at 40 C.F.R. § 86.004-11(a)(1)(i)(E) (setting schedule for regulatory review of the on-highway heavy-duty engine standards).

**(G) Opposes the proposed timeline for the future rulemaking.**



- (1) EPA lacks statutory authority to extend a rulemaking deadline that it has already failed to meet.

Letters:

National Petrochemical and Refiners Association (IV-D-33) p. 4

**Response to Issue 8(G)(1):** As noted in the response to issue 2.1(A)(1), EPA has a continuing obligation under the statute to periodically revise regulations established pursuant to Section 202(l)(2). Section 202(l)(2) clearly states that EPA shall “promulgate (and from time to time revise” regulations...” In other words, Congress intended EPA to consider control of emissions of hazardous air pollutants from motor vehicles and their fuels as an ongoing air pollution issue.

- (2) The proposed two-year study schedule does not provide sufficient time for EPA to adequately assess the impacts of existing and upcoming controls on toxic emissions.

Letters:

American Petroleum Institute (IV-D-21) p. 6

**Response to issue 8(G)(2):** The agency routinely projects emissions reductions from control programs that have not been fully implemented. Today’s rule quantifies expected future reductions, and we will be able to do so in two years as well. Moreover, in the next two years, we will have better information on inventory, exposure, and risk, since we will be focusing on acquiring this information as part of our Technical Analysis Plan.

- (3) EPA should amend their schedule so that final standards for both on- and non-road sources are promulgated by June 2004.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 2  
STAPPA, ALAPCO (IV-D-22) p. 3

**Response to issue 8(G)(3):** The final rule establishes July 1, 2004 as the date for final promulgation of the rule for on-highway controls as appropriate. We have also explained in the regulation that during this rulemaking EPA intends to evaluate emissions and potential control strategies relating to hazardous air pollutants from nonroad engines and vehicles.

- (4) EPA should continue to study the issue and plan to propose additional rules by the end of 2001. Also, EPA should establish a three-year cycle for reviewing the rule's impact and the need for strengthening it.

Letters:

Clean Air Network, et al (IV-D-38) p. 5

**Response to issue 8(G)(4):** The Agency has established an ambitious research agenda in the rule. The Agency does not believe that it would be appropriate or reasonable to shorten the time period allotted for additional research and analysis prior to the next rulemaking. It is premature to commit the Agency to a three-year cycle of review for the mobile source air toxics rule until we gain a more robust appreciation of the risks attributable to air toxics.

**(H) Small land-based SI engines should be excluded from all further rulemakings.**

- (1) It is not cost-effective to continue to spend money studying or regulating insignificant contributors of emissions.

Letters:

North American Equipment Dealers Association (IV-D-37) p. 2-3

**Response to issue 8(H)(1):** These engines may play an important role in contribution to personal exposure to air toxics despite the fact that their contribution to national inventories is relatively low. As part of the TAP, we will determine which pollutants and categories of new nonroad engines are appropriate for further controls.

**ISSUE 9: COMMENTER SUPPORTS OTHER'S COMMENTS**

**(A) Commenter supports comments made by API.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Chevron (IV-D-34) p. 1  
Citgo Corporation (IV-D-5) p. 1  
ExxonMobil (IV-D-16) p. 10  
Marathon Ashland Petroleum, LLC (IV-D-15) p. 1  
Phillips Petroleum Company (IV-D-20) p. 5

**Response to issue 9(A)(1):** No response required.

**(B) Commenter supports comments made by NPRA.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Marathon Ashland Petroleum, LLC (IV-D-15) p. 1  
Phillips Petroleum Company (IV-D-20) p. 5

**Response to issue 9(B)(1):** No response required.

**(C) Commenter supports comments made by STAPPA/ALAPCO.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Commonwealth of MA DEP (IV-D-13) p. 1

- (2) Commenter supports STAPPA/ALAPCO hearing testimony.

Letters:

Puget Sound Clean Air Agency (IV-D-27) p. 1

**Response to issue 9(C)(1) and (2):** No response required.

**(D) Commenter supports comments made by NESCAUM.**

- (1) Commenter provides no further supporting information or detailed analysis.

Letters:

Commonwealth of MA DEP (IV-D-13) **p. 1**

**Response to issue 9(D)(1):** No response required.

**(E) Commenter supports comments made by EMA.**

(1) Commenter provides no further supporting information or detailed analysis.

Letters:

Alliance of Automobile Manufacturers (IV-D-11) **p. 5**  
International Truck and Engine Corp. (IV-D-30) **p. 1**

**Response to issue 9(E)(1):** No response required.

(2) Commenter supports EMA's hearing testimony generally.

Letters:

Detroit Diesel (IV-F-1) **p. 75**

**Response to issue 9(E)(2):** No response required.