Summary of Public Comments on the Section 112(c)(6) Draft Listing Notice

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Prepared by:

Visibility and Ecosystem Protection Group
Mail Drop 15
Air Quality Strategies and Standards Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

and

Emission Factor and Inventory Group
Mail Drop 14
Emissions Monitoring and Analysis Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

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1.0 PURPOSE OF DOCUMENT

Section 112(c)(6) of the Clean Air Act Amendments (CAAA) of 1990 prescribes the following regulatory program for seven specific pollutants:

> With respect to alkylated lead compounds, polycyclic organic matter, hexachlorobenzene, mercury, polychlorinated biphenyls, 2,3,7,8-tetrachlorodibenzofurans and 2,3,7,8-tetrachlorodibenzo-p-dioxin, the Administrator shall, not later than 5 years after the date of enactment of the Clean Air Act Amendments of 1990, list categories and subcategories of sources assuring that sources accounting for not less than 90 percent of the aggregate emissions of each such pollutant are subject to standards under Subsection (d)(2) or (d)(4). Such standards shall be promulgated not later than 10 years after such date of enactment. This paragraph shall not be construed to require the Administrator to promulgate standards for such pollutants emitted by electric utility steam generating units."

In order to meet the requirements of Section 112(c)(6), national inventories of sources and emissions of these seven specific pollutants were compiled by the U.S. Environmental Protection Agency (EPA). These inventories provide the reference basis for the development of a national strategy to control the 112(c)(6) pollutants to the extent specified in the statute.

The EPA published a draft listing of source categories accounting for the section 112(c)(6) hazardous air pollutant (HAP) emissions and the source categories needed to meet the 90 percent requirement in the Federal Register on June 20, 1997 (62 FR 33625). The notice and the base year inventory document contain detailed information about emissions inventory development methodology and its review process. The EPA posted the notice, the 1990 base year inventory, and an explanatory fact sheet on the EPA's Internet web site (www.epa.gov/ttn/uatw/112c6fac.html). The EPA also notified trade associations, environmental groups, regulatory agencies, and other parties who had expressed interest or supplied data to alert them of the availability of the section 112(c)(6) package. The EPA accepted comments on the draft listing and base year inventory over a 30-day comment period.

A total of 27 separate comment letters were received regarding the July 20, 1997 Federal Register package. Several of the comments pertained to the accompanying 1990 base year emissions inventory supporting the section 112(c)(6) listing process. Within the 27 individual comment letters, approximately 50 separate comment issues were identified. These comments pertained to both technical and policy issues. This document was prepared to provide a summary of the comments received, the issues raised, and EPA's responses to the comments. Similarly focused comments have been aggregated and summarized in this document, along with the EPA responses to the comments. The responses indicate how a technical or policy issue is being addressed in the final Federal Register listing notice for section 112(c)(6) or in the final supporting emissions inventory. The comment summary/response document can be found in the docket for the section 112(c)(6) project and on the EPA air toxics web page (http://www.epa.gov/ttn/uatw/112c6fac.html).

The remainder of this document is organized into two sections, one section addressing technical comments received on the 112(c)(6) draft notice and inventory, and another addressing policy comments on 112(c)(6). Within each section, similar comments are identified and EPA's response to the comment is explained along with an indication of how the response affected the final 112(c)(6) inventory report or final listing notice.

2.0 TECHNICAL COMMENTS AND RESPONSES

The majority of the technical comments regarded items relating to some aspect of an emissions inventory estimate for a source category. Most of these comments questioned the use of a particular emission rate or factor or the use of an activity rate for a source category. The EPA evaluated the technical data submitted and revised several emissions estimates based on these comments. The most substantive of these comments and EPA responses to them are summarized below.

Comment: The level of hexachlorobenzene (HCB) contamination in chlorinated solvent products is far below what EPA used to calculate its national emissions estimate. The data industry proposes for the contamination level would greatly lower emissions attributable to chlorinated solvents production sources.

Response: The process used by EPA in developing 1990 base year HCB emissions for the chlorinated solvents category relied on the use of industry-reported emission estimates from the 1990 Toxic Release Inventory (TRI) system. EPA believes that the use of the industry-reported data is the best approach for 112(c)(6) inventory purposes. None of the information provided in the comment were deemed to be of any greater quality or confidence for 1990 that would warrant not using the 1990 TRI data. Also, it was unclear if the alternative data offered in the comment were for 1990 conditions.

Comment: By not including hexachlorobenzene emissions from pesticides application in the emission tables in the 112(c)(6) Federal Register notice, EPA is inappropriately making chlorinated solvents production look like the major category of HCB emissions when it is not.

Response: Pesticides application is not a stationary source of HCB emissions; and is therefore, not included in the 112(c)(6) regulatory strategy analysis. EPA does not believe pesticides application should be a part of the analysis since it is not a source category that would be regulated by maximum achievable control technology (MACT) standards. Additionally, in

the final 112(c)(6) inventory, additional categories have been included such that chlorinated solvents production is not the highest emissions category.

Comment: A commenter asserted that there were inconsistencies between data related to gasoline distribution in Table 8-2 of the 112(c)(6) inventory and Table 1 of the Federal Register notice.

Response: For the purposes of EPA's 112(c)(6) emission inventory process, gasoline distribution stage I includes all emissions associated with the distribution of gasoline up to refilling underground storage tanks at service stations. Stage II emissions occur at the service station pump. The emissions were apportioned to stage I and stage II operations such that a portion of the emissions associated with service stations were assigned to both operations. The use of this approach provides a more accurate estimate of emissions than allocating all service station emissions to stage II as proposed by the commenter. The approach used in the inventory is consistent with the way EPA has developed the gasoline distribution stage I MACT and stage II control programs at the pump.

Comment: Several commenters suggested that the EPA reconsider listing "Gasoline Distribution (Aviation)" as a source category for alkylated lead under section 112(c)(6) based on the following arguments: 1) The EPA incorrectly characterized the contribution of "Gasoline Distribution (Aviation)" to the total 1990 alkylated lead emissions. Given that Gasoline Distribution (Stages I and II) emissions were largely uncontrolled in 1990, their contribution to total alkylated lead emissions may be underestimated. 2) Alkylated lead emissions from "Gasoline Distribution (Aviation)" constitutes a near negligible source and exposure to the public is very low.

Response: No new or alternative 1990 national emission estimate for alkylated lead from aviation gasoline distribution was provided by the commenters. No data were provided by the commenters that would change the emission estimate for aviation gasoline distribution. EPA, therefore, has no basis on which to change the existing 1990 national emissions estimate and has not done so. Furthermore, EPA does not agree with the commenters that 1990 emissions from

stage I gasoline distribution were "largely uncontrolled," and thus misrepresent the contribution of the category to total national alkylated lead emissions. In regards to the comment that "exposure to the public is low," the inventory only provides estimates of emissions - public exposure to emissions was not in any way considered in this study.

Comment: One commenter indicated that the 112(c)(6) estimates for "Gasoline Distribution (Aviation)" do not include the use of highly leaded aviation fuel.

Response: The EPA assessment and inventory report for 112(c)(6) alkylated lead emissions did recognize the availability of high-lead aviation gasoline. The inventory report notes that high-lead formulations was used to develop conservative estimates of tetraethyl lead (TEL) evaporative emissions from aviation gasoline.

Comment: A commenter sought a clarification of the "Gasoline Distribution (Aviation)" source category listing for two reasons: 1) to assure the exclusion of commercial jet fuel in the listing, and 2) to clarify which aviation industries may be subject to regulations by the rule. The commenter specifically requested that the term "aviation fuel" be defined for the purposes of section 112(c)(6).

Response: For the purposes of the 112(c)(6) emissions inventory analysis, the source category of gasoline distribution (aviation) did not and does not include commercial jet fuels. Only aviation gasoline used in reciprocating piston-engined aircraft were included in the inventory evaluation and estimate. It is not possible to address the second part of the commenter's request that the aviation industries potentially subject to regulations be listed. The 112(c)(6) process only identifies source categories that are candidates for listing for standards development under Clean Air Act section 112(d). The specific "industries" that end up being part of the regulated community will not be determined until such time that the full 112(d) standards development process commences and reaches this position. The 112(c)(6) inventory process only provides emission estimates and does not indicate any regulatory plan or requirement.

Comment: The 112(c)(6) 1990 baseline emissions inventory incorrectly includes alkylated lead emissions from lead in motor vehicles gasoline that has been phased out.

Response: The base year for the 112(c)(6) inventory was 1990. Leaded fuel for onroad vehicles was not fully banned until December 31, 1995 (see section 211(n)) . According to U.S. EPA evaluations, in 1990, 4.8 percent of highway vehicle fuel sold was leaded, with there being a particularly strong market for leaded fuel in the Pacific Northwest. EPA, therefore, believes it would be incorrect to calculate 1990 base year emissions with the assumption that all highway vehicle fuels being consumed in 1990 were lead-free.

Comment: A commenter indicated that it is important to evaluate both gas and particulate-phase components of polycyclic organic matter (POM) and dioxins/furans emissions for the purpose of the 112(c)(6) inventory.

Response: In the evaluation of available test data for construction of the inventory, both gas and particulate-phase components of POM and dioxins/furans were considered to the extent that the source test information allowed. If both phases of the emissions were analyzed in the tests, the factors developed for inventory purposes included both components.

Comment: The number of iron and steel foundries was questioned and an alternate number was provided.

Response: The final 112(c)(6) inventory report was modified to reflect the source information specified by the commenter.

Comment: The dioxins/furans emission estimate for iron and steel is poor because it is based on samples obtained from a single facility. No other dioxins/furans data were provided by the commenter.

Response: The final 112(c)(6) inventory emission estimate is based on the best information EPA could determine. EPA agrees with the commenter that it would be much better to have more data from multiple facilities, but these data were not available. The draft dioxin

estimate, however, has been significantly reduced in the final inventory to reflect the downward shift in the source category's activity rate. The change in activity rate was also prompted by an external review comment.

Comment: The activity level for iron and steel foundries was questioned and an alternate activity level was provided.

Response: The revised activity level for the source category suggested by the commenter was incorporated into the emission estimate calculations for the final inventory.

Comment: The POM emission factor for iron and steel foundries was questioned. The commenter states that non-representative emissions data from bench-scale measurements were used to derive a composite emission factor for use in calculating a national estimate. Not using the questioned data reduces emissions by several orders of magnitude.

Response: EPA evaluated the comment and decided to delete the data in question from the POM emission factor analysis. A revised POM emission factor was developed which is significantly lower than that used in the draft inventory analysis. The lower emission factor combined with a large reduction in the source category activity level resulted in national emissions for the category dropping by more than an order of magnitude in the final inventory.

Comment: The approach used to estimate polychlorinated biphenyl (PCB) emissions from municipal waste combustors (MWCs) was questioned as being "highly speculative and inappropriate." The commenter indicated that it is inappropriate to use three emission tests to derive factors which in turn are used to estimate national emissions.

Response: EPA agrees with the commenter that it would be advantageous to have more data points on which to base the estimate; however, no alternative data or approaches for estimating emissions were provided by the commenter, such that this estimate could not be improved upon. No additional PCB emissions data were identified during the external inventory review process.

Comment: A commenter provided some very general information on her beliefs regarding the possible emission of some 20 HAPs from MWCs. For each HAP, the commenter identified whether or not the HAP was emitted from MWCs, whether or not they had any test data for this HAP, and where data were available. A summary listing of results was provided. Pollutants for which the commenter said MWCs were not a source and for which they knew of no test data results are: 1,1,2,2-tetrachloroethane, 1,3-butadiene, 1,4-dichlorobenzene, acrolein, methyl chloride, and chloroform. HAPs indicated as being possible MWC pollutants and for which test data were or soon will be available included acetaldehyde, benzene, POM, arsenic compounds, cadmium compounds, carbon tetrachloride, chromium compounds, dioxins/furans, formaldehyde, lead compounds, manganese compounds, mercury compounds, and nickel compounds.

Response: The overall comment was made in response to an EPA request for information for its section 112(k) HAP inventory. Most of the pollutants commented on are 112(k) pollutants. While providing some useful insights into the future availability of possible HAP emission data for MWCs, the comment did not provide a significant amount of information that was directly usable to revise the final 112(c)(6) inventory.

Comment: A commenter stated that the annual volume of scrap tires burned and, therefore, the emission estimates for POM surrogates are overstated. However, the commenter does not have a more reliable estimate for volume of scrap tires burned.

Response: EPA agrees with the commenter that the available data on which to base an annual activity figure for this source category are poor. As a part of the comment period, EPA re-evaluated the available activity information and determined that between 5 and 10 million tires are open burned annually. The mid-point of this range (7.5 million tires) was used to re-calculate national POM emissions from scrap tire open burning. This new activity data was applied to the emission factors used in the draft inventory yielding a much lower final emission estimate for this source category.

Comment: There is a concern that EPA has included facilities in the hazardous waste-burning kiln category that had applied for interim incinerator status, but that had not actually burned hazardous waste in 1990. If this was done, the 1990 emissions estimate for this group of sources would be overstated.

Response: The EPA 1990 emissions estimate for this source category is based on the Agency's database of information for facilities believed to actually have burned hazardous waste as supplemental fuel in 1990. The question of whether or not a facility had applied for "interim incinerator status" is not relevant to the emissions issue. The potential regulatory classification of a source would not have affected how its HAP emissions were evaluated for 1990. EPA does not see a reason to adjust its 112(c)(6) emission estimates as a result of this comment.

Comment: EPA has greatly overestimated the total amount of clinker produced by all cement kilns in 1990 and overestimated the amount produced by hazardous waste-burning kilns in 1990. The total amount produced has been overestimated by 17 percent, while the amount from hazardous waste-fired kilns was overestimated by 44 percent.

Response: EPA re-evaluated the national activity data used for non-hazardous and hazardous waste kilns based on its ongoing work in national emissions standards development programs for both source types. EPA agrees that the activity data used in the draft inventory analysis were overstated. In the production of the final inventory estimates for both non-hazardous and hazardous waste kilns, the information provided by the commenter was used to help re-calculate national estimates. The final inventory estimates for the source category were significantly reduced for some pollutants.

Comment: There is a typographical error in Appendix B of the 112(c)(6) emissions inventory report in which the activity data values for non-hazardous and hazardous waste kilns are switched in the example calculations.

Response: The comment is correct regarding the error in Appendix B. This correction was made to the final 112(c)(6) inventory report.

Comment: As a result of using incorrect activity data and an incorrect emission factor for mercury, mercury emissions are overestimated in the 112(c)(6) inventory by 20 - 38 percent. A commenter indicated that the mercury Locating and Estimating (L&E) document factor of 1.3E-04 lb/ton clinker factor should have been used for both non-hazardous and hazardous waste kiln estimates. The 112(c)(6) estimate used a factor for non-hazardous waste kilns of 1.5 E-04 lb/ton clinker. No factor was expressed for hazardous waste kilns as this national estimate was provided by EPA's Office of Solid Waste database. Combining the lower factor with the lower activity levels indicated by industry gives estimates 20 - 38 percent lower than the current EPA estimates for 1990.

Response: Mercury emissions for this source category were re-calculated in the final inventory using both a lower activity data level and the reduced emission factor specified by the commenter, resulting in a lower national mercury emissions estimate for cement kilns in the final inventory. The lower mercury emission factor suggested by the commenter (and contained in the mercury L&E report) was not available at the time the draft 112(c)(6) inventory was compiled. The lower and newer factor suggested by the commenter was deemed to be the desired factor for use in the final 112(c)(6) inventory analysis. Mercury emissions in the final 112(c)(6) inventory are approximately 21 percent lower than those reported in the draft.

Comment: The dioxin emission factor for non-hazardous waste kilns that EPA used is an order of magnitude higher than that developed by the cement industry, thus resulting in an overestimate of emissions. The EPA factor is 1.78E-09 lb/ton clinker (expressed as toxic equivalents or TEQ). The industry factor based on 30 tests is 1.02E-10 lb/ton. All values are expressed at 7 percent oxygen.

Response: EPA has examined the emissions data provided by the commenter in the context of the MACT standard development project for non-hazardous waste cement kilns. Based on these data and other emissions information, EPA has revised its dioxin TEQ emission factor and emissions estimate for this source category, but not to the level suggested by the commenter. The new emission factor is 0.20 ng/dry standard cubic meter of flow, which translates into a factor of 1.36E-09 lb/ton. This change, combined with a reduction in the

activity level, lowered the final 112(c)(6) national dioxin TEQ emissions estimate for the category by about 29 percent.

Comment: For a given pollutant, EPA should use a consistent set of units when presenting the emissions of various industry sectors. This would make it easier to compare estimates between categories.

Response: EPA agrees with the commenter and will revise the presentation of 112(c)(6) data to be on a consistent units basis. Different units were used previously for clarity in cases where emissions for a pollutant/category were very small and expressing them as tons/year resulted in the use of very small decimal values.

Comment: The current emissions estimate for mercury from hazardous waste kilns of 3.5 tons/yr is incorrect. Industry data indicates the estimate should be 2.75 tons/yr. The basis for the revised estimate is data provided by the industry, to EPA, in a letter that was submitted on August 19, 1996.

Response: EPA agrees with the commenter that the 1990 base year estimate of national mercury emissions from hazardous waste burning cement kilns should be 2.75 tons/year. The estimate is reduced due to the application of a lower mercury emission factor which EPA and the industry have agreed should be used and the use of a lower activity level for the source category. The reduced emissions estimate will be reflected in the final 112(c)(6) inventory report.

Comment: The test data used to develop emission factors and estimates for cement sources is biased high because of EPA's regulations that require testing of such sources be done under worst-case conditions. These conditions, such as requiring elevated temperatures at control devices, alter "actual" emissions and potentially make the data not representative of "normal" operation. EPA should therefore consider the appropriateness of a scaling factor to reduce emissions to their actual levels to allow for more appropriate comparisons with other industry sectors in the 112(c)(6) listing.

Response: EPA agrees with the commenter that emissions test data used to develop the national emission estimates for dioxin/furans from the hazardous waste-burning class of cement kilns may be biased high due to the unfavorable conditions during which the emissions data were generated. These unfavorable conditions often include operation of the air pollution control device at elevated temperatures and under non-optimal performance conditions as generally required by existing Resource Conservation and Recovery Act (RCRA) regulations during periodic compliance tests. Since much of the dioxin/furan data available to EPA was generated under these conditions, the emissions data, and therefore the national emissions estimate for cement kilns burning hazardous waste, may be artificially inflated and not representative of day-to-day emissions levels. Despite these factors and limitations, EPA believes that the level of "actual emissions" would not be sufficiently different to change the ranking of hazardous waste kilns in the 112(c)(6) analysis. Since no alternative data were presented on which to base a revised national 112(c)(6) emissions estimate for this category, the potentially biased-high information had to be used.

Comment: The 1996 dioxin estimate given in the 112(c)(6) inventory is wrong because two of the facilities included in the estimate have since closed (RC's Festus, MO and National Cement's Lebec, CA plants). The national dioxin emissions estimate would be less than 23 g/year with these two plants removed.

Response: The EPA agrees with the commenter that the closure of the two referenced hazardous waste kilns reduces the 1996 national dioxin TEQ emission estimate to approximately 23 g per year (0.000025 tons per year). The final inventory report has been revised accordingly.

Comment: Whole tire burning should be considered separately from crumb rubber as a scrap tire incineration category.

Response: Though the approach suggested by the commenter might provide a more accurate emission estimate for the source category, there are currently no activity data for 1990 national crumb rubber incineration from which to base an emissions estimate. No data of this

type could be determined from the literature, from industry, or from the commenter; thus, no 112(c)(6) emissions estimate was prepared for crumb rubber burning.

Comment: The dioxins/furans and PCB estimates are questioned since they are based on samples obtained from a single facility.

Response: EPA agrees with the commenter that the amount of data available to estimate emissions of these pollutants from this source category is not optimal and it would be desirable to have more data points on which to base emission factors for the purposes of calculating a national estimate. However, no additional data could be identified by EPA during its search as a part of the 112(c)(6) inventory development process. No additional information was received as well during the public review/comment process; therefore, EPA has no basis on which to change its emissions estimates and has not done so for the purposes of the final 112(c)(6) emissions inventory.

Comment: EPA's estimates for extractable organic matter (EOM) emissions from utility combustion sources are questioned because the reference relies on samples taken in the mid-to late-1970's.

Response: EPA agrees with the commenter that the age and extensiveness of the information used to develop EOM emission estimates for this source category is not optimal; however, these data were the only EOM information that could be determined for the purposes of the 112(c)(6) inventory. No additional data were identified by industry or the public during the external review process; therefore, EPA has no information on which to base changes to the existing EOM emission estimates. No changes were made to the national EOM emission estimates for this source category in the final 112(c)(6) inventory.

Comment: A commenter stated that the PCB estimate for utility oil combustion is overstated and questions the EPA's assumptions in their emission estimate.

Response: Due to a lack of available emissions data on PCB emissions from this category, EPA was forced to construct the 112(c)(6) inventory estimate using a series of

assumptions on the amount of PCBs contained in residual oil. To fulfill its obligations under 112(c)(6), EPA took a conservative approach and based the PCB level on the maximum permissible concentration of PCBs in the oil. Since no other PCB emissions data or data on the level of PCBs found in all of the oil burned was found or provided during the public review process, EPA believes the estimates should remain as they are in the final 112(c)(6) emissions inventory.

Comment: One commenter indicated that the mercury estimate for utility coal combustion is overstated and questions the EPA's methodology. They suggest using the mercury estimate included in a 1996 Electric Power Research Institute (EPRI) report, Mercury in the Environment - A Research Update.

Response: As a part of its Clean Air Act mandated study of utility boilers, EPA has studied the mercury issue in depth and has extensively evaluated the industry data and position on mercury emissions. At this time, the Agency believes the estimate it has now for national mercury emissions from utility coal combustion is the correct one to use for the 112(c)(6) inventory. This estimate is consistent with the data that will be presented in the final report to Congress on utility HAP emissions.

Comment: A commenter stated that the dioxins/furans estimates for utility oil and coal combustion are overstated and questions the EPA's methodology. Concern was expressed over the manner in which EPA treated non-detects when evaluating test data.

Response: Since the publication of the draft external review 112(c)(6) inventory estimates for dioxin/furan emissions from this category, EPA has revised its estimates through work conducted as a part of the project to produce a Report to Congress on utility boiler HAP emissions. The dioxin/furan estimates for coal- and oil-fired units have been reduced by approximately 27 percent and 36 percent, respectively, from those contained in the draft 112(c)(6) inventory. EPA has evaluated the commenter's concern over the treatment of non-detects in emissions test data and believes that its method of dioxin/furan data analysis and emission factor calculation is correct and consistent with the applicable test method.

Comment: The EPA's estimate for annual volume of creosote-treated wood is overstated by approximately 80 percent. New activity data figures were provided.

Response: EPA agrees that the commenter's activity information is an improvement over the data previously used in the inventory analysis. The new activity data from the commenter were used to construct the final national emissions estimate for the wood treatment source category.

Comment: An alternate 16-polynuclear aromatic hydrocarbon (PAH) emission factor for wood treatment/wood preserving was provided that was 7 percent higher than the factor used in EPA inventory calculations.

Response: EPA evaluated the alternate emission factor provided by the commenter for use in constructing the national 16-PAH estimate for this category. EPA could not determine any technical basis to change the emission factor previously used to develop the draft inventory estimate, and therefore, did not apply the higher emission factor suggested by the commenter. However, the final inventory estimate for this category was significantly reduced from that contained in the draft report due to the use of a reduced activity level for the industry.

3.0 POLICY COMMENTS AND RESPONSES

The policy-oriented comments predominantly addressed what regulatory programs could be counted as fulfilling the section 112(c)(6) "subject to standards" requirement, what portion of total source category emissions can be credited as being "subject to standards" for the section 112(c)(6) 90 percent requirement, what source categories should be included in the 90 percent "subject to standards" analysis, and what are appropriate definitions for the polycyclic organic matter and dioxin/furan pollutants. Comments also stated that EPA should do more to communicate the emissions reductions that industries have done for section 112(c)(6) pollutants since 1990 and that current emissions are significantly below 1990 levels; and that the aviation gasoline distribution category should not be included in the listing since there is currently no viable substitute for leaded aviation fuels and recent discussions between the industry and the Federal Aviation Administration (FAA) indicated no regulatory programs would be pursued for leaded aviation fuels. The most substantive of these comments and EPA responses are summarized below.

Comment: Several commenters were concerned that EPA consider aviation safety and performance standards when considering "Gasoline Distribution (Aviation)" as a source category under section 112(c)(6).

Response: The EPA will consider such safety standards. Section 112(d)(2) standards require using the technology and practices of the best performers within an industry to set the standard for the rest of the industry.

Comment: One commenter stated that credits for stage II gasoline distribution regulations under sections 182(b)(3) and 202(a)(6) are only appropriate if they are protective of human health.

Response: Section 112(c)(6) does not require EPA to determine an emissions level "protective of human health." In any case, EPA is not including stage II gasoline distribution emissions in the section 112(c)(6) analysis for the reasons described in IV.A.5. below.

Comment: One commenter stated that in its section 112(c)(6) proposal, EPA improperly and illegally counts emissions as "subject to standards" that are not yet subject to standards, that are subject to standards other than MACT, or that are only partially subject to standards. Only emissions that are subject to standards under section 112(d)(2) and 112 (d)(4) can be counted toward the 90 percent goal contained in section 112(c)(6).

Response: The EPA made changes in the final listing action in response to this comment. First, HAP emissions from electric utility steam generating units were removed from the analysis. Section 112(c)(6) provides that, "This paragraph shall not be construed to require the Administrator to promulgate standards for such pollutants emitted by electric utility steam generating units." Furthermore, section 112(n)(1)(A) requires EPA to perform a study of the public health hazards posed by HAP emissions from electric utility steam generating units and to regulate those sources if "appropriate and necessary after considering the results of the study." The EPA believes that those provisions give the Agency discretion to exclude utility emissions from listing and regulation under section 112(c)(6). Congress enacted section 112(n)(1)(A) to establish the mechanism for determining whether regulation of utility HAP emissions under section 112 was "appropriate and necessary" and section 112(c)(6) specifically acknowledges that function. The EPA believes that the language used in section 112(c)(6) reflects Congress' determination that the mechanism established by section 112(c)(6) is not appropriate for the regulation of utility HAP emissions. Therefore, EPA has removed utility HAP emissions from this analysis.

Second, EPA has added information on whether each Industrial Combustion Coordinated Rulemaking (ICCR) category will be subject to section 112 or section 129 standards. (EPA has found section 112(d)(2) and 129 standards to be substantively the same, as discussed in the draft listing Federal Register notice.

Comment: One commenter stated that in determining source categories subject to standards and counting emissions toward the section 112(c)(6) 90 percent goal, EPA has assumed that 100 percent of all emissions for each MACT category are major source emissions.

Therefore, all emissions from a category for which there is a MACT are covered, even if there are actually area sources that may not be subject to the MACT.

Response: The EPA has made a significant effort to characterize emissions from each of the section 112(c)(6) emissions source categories. These area and major source emissions allocations are detailed in the draft and final emissions inventory documents which have been made available with the draft and final listing notices. Information on these area/major allocations comes primarily from work conducted in association with MACT standard development or derived from definitions of facilities. The EPA finds the MACT data to be of generally higher quality than the facility definition data, which are expected to improve as MACT standards are developed for these categories.

For the section 112(c)(6) analysis, in cases where a regulation for a given source category has been promulgated, the percent of emissions subject to the standard has been credited. For example, in the source category gasoline distribution stage I, only 10 percent of the emissions are from major sources subject to the standard and have been counted toward the 90 percent goal. For source categories with regulations that have not yet been promulgated, EPA will subject each significant area source category to standards as directed by section 112(c)(6). When the regulations for each of those categories are developed, EPA will analyze the data specific to those sources and determine, under section 112(d), in what manner requirements will be established. Some area categories may be negligible contributors to the 90 percent goal, and as such pose unwarranted burdens for subjecting to standards. These trivial source categories will be removed from the listing as they are evaluated since they will not contribute significantly to the 90 percent goal.

Comment: One commenter stated that EPA's treatment of emissions in the proposed notice implies that the Agency believes it has identified all source categories of section 112(c)(6) pollutant emissions and, therefore, has accounted for 100 percent of emissions. The EPA should document the basis for this assumption. If this cannot be documented, the EPA should not assume that 90 percent of the emissions reported in the proposal notice equal 90 percent of the total amount of section 112(c)(6) pollutant emissions.

Response: The EPA has documented all sources for which emissions data could be found and has indicated all source categories for which emissions are suspected but no data to estimate emissions could be found. The methodology for developing the emissions inventory estimates is described in detail within the base year inventory document. Any supported additional data that have been submitted by reviewers have also been incorporated. The EPA believes it has sufficiently supported its emissions estimates and has been as inclusive as possible of all relevant data. The EPA further notes that the commenter has supplied no information which would contradict or refute EPA's belief that all source categories have been identified.

Comment: One commenter stated that the only MACT standards that are countable toward the section 112(c)(6) 90 percent requirement are those standards that specifically establish requirements for section 112(c)(6) HAP (i.e., EPA cannot claim credit for a MACT for benzene as subjecting the source to standards for dioxin), and that a section 112(d)(2) standard for which EPA claims credit for section 112(c)(6) purposes must specifically regulate the emissions of the section 112(c)(6) pollutant.

Similarly, another comment asserted that Congress intended for EPA to reduce section 112(c)(6) HAP emissions by even more than they would be reduced by any other section 112(d)(2) standard means, and that this is why they imposed especially stringent emissions targets. The commenter asserted that this interpretation is supported by the legislative history of the Act.

Another commenter stated it is not appropriate for EPA to have claimed section 112(c)(6) credit for section 112(d)(2) applicability and MACT emission reductions when the subject standard does not reduce nor require any reductions for the section 112(c)(6) HAP. If EPA evaluates this situation for a category and determines that no real reductions are possible under a given MACT, the commenter stated that they should report this finding to Congress. The commenter further argued that claiming these credits for standards that do nothing in terms of real emission reductions is not appropriate.

Response: The EPA responds that section 112(c)(6) and 112(d) does not require a specific quantitative reduction in emissions for any particular HAP. Section 112(c)(6) calls for EPA to assure that certain sources "are subject to standards under subsection 112(d)(2) or

(d)(4)." The relevant sources are selected on the basis of whether they emit the seven listed HAP. Section 112(c)(6) does not, however, require that EPA achieve a specific amount of reductions of those seven listed HAP. Today's action satisfies section 112(c)(6) by assuring that source categories accounting for 90 percent of the emissions are subject to standards under section 112(d)(2) or (d)(4).

Section 112(d)(2) and (d)(4), in turn, define the mechanism for setting standards. That mechanism establishes a minimum level of performance. Like section 112(c)(6), it does not mandate any particular percentage reduction in emissions of any particular HAP. However, standards under section 112(d)(2) will be reevaluated for "residual risk" under section 112(f). Under this provision, EPA can impose additional standards, if necessary, "to provide an ample margin of safety to protect public health ... or to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect."

Comment: Some commenters emphasized the point that in order for area sources within the source categories listed in the section 112(c)(6) inventory to be regulated or for the area sources within the applicable MACT to be regulated, EPA must first make a determination that the sources pose an adverse threat to human health or the environment pursuant to section 112(c)(3) requirements. The EPA cannot impose MACT or any other control requirements on area sources without making such a determination first.

Similarly, a commenter did not believe that section 112(c)(6) mandates the control of area sources within a listed source category. The commenter went on to say that the proposal notice was unclear on whether area sources were presumed to be affected by the credited MACT, but that whether they were or were not, area sources within the Portland cement industry are not presumed to be regulated by the industry MACT standards as a result of their inclusion in the section 112(c)(6) source list.

Response: The EPA responds that section 112(c)(6) requires that sources accounting for at least 90 percent of emissions of the specified pollutants be subject to section 112(d)(2) standards or section 112(d)(4). Unlike section 112(c)(3), this requirement does not call for, nor does EPA believe it permits, a finding of health or environmental threat from area sources to

determine if such sources need to be included to meet the 90 percent requirement. However, EPA will determine whether specific regulation of the area source component of a source category is appropriate, or necessary to meet the 90 percent goal, based on more source category-specific data collected as part of the regulatory process.

Comment: Another commenter challenged that EPA should not, in its listing for section 112(c)(6), split the Portland cement category into two categories, one for sources combusting hazardous waste fuel and one for sources not combusting hazardous waste fuel.

Response: Section 112(c) generally authorizes EPA to establish source categories or subcategories for regulation as appropriate. The EPA chose to split hazardous and non-hazardous waste-burning source categories in order to reflect the distinctions made in MACT standards currently under development within EPA's Office of Air Quality Planning and Standards (OAQPS) and the Office of Solid Waste (OSW). The OAQPS rule, which is not yet proposed, applies to cement kilns that do not burn hazardous waste and to other HAP-emitting sources at a cement plant, regardless of whether or not the cement kiln burns hazardous waste. Cement kilns that burn hazardous waste will be covered by the hazardous waste combustor rule which was proposed April 19, 1996 (61 FR 17358). Approximately 40 out of the 210 cement kilns in the U.S. burn hazardous waste as a fuel. The sources burning hazardous and nonhazardous fuel are being regulated under separate actions due to their different emissions characteristics, different air pollution controls, and separate classification by virtue of section 3004 (q) of the Resource Conservation and Recovery Act.

Comment: Several commenters responded to EPA's request for input on the most appropriate definition of POM for use in this action. While many comments provided information that will improve the emissions estimates for the various source categories emitting these compounds, EPA did not receive information which would favor the selection of one surrogate approach over another as a basis to make listing determinations for all categories associated with emissions of section 112(c)(6) HAP.

Response: POM is defined in section 112(b) to "[i]nclude[] organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C." The complex mixture of POM consists of literally thousands of organic compounds, and no standardized method exists at this time to measure these emissions. There are, however, some valid surrogates for POM that provide sufficient emissions inventory data for this analysis: 1) extractable organic matter (EOM), which is composed of the solvent-extractable fraction of particulate matter, 2) the sum of the seven polynuclear aromatic hydrocarbon compounds that are probable carcinogens (7-PAH), and 3) the sum of the sixteen PAHs measured in EPA test method 610 (16-PAH). (For a more complete discussion of POM surrogates, refer to the section 112(c)(6) emissions inventory document.) The EPA and others are engaged in further efforts to better characterize the constituents of POM that are most significant in evaluating health and environmental effects.

Rather than circumventing that effort by selecting one surrogate, EPA collected and used data for all three approaches in the section 112(c)(6) assessment. As a result, the Agency did not discard any of the possible surrogates for POM; the section 112(c)(6) listing reflects an analysis that satisfies the 90 percent requirement using each one of the three approaches.

Comment: One commenter argued that use of toxic equivalency (TEQ) is inappropriate as a surrogate for 2,3,7,8-TCDD. While 2,3,7,8-TCDD is a single compound, TEQs sum emissions of various dioxins and furans based on toxic equivalency (see inventory document for more discussion of this issue).

Response: As explained in the draft listing Federal Register notice, EPA chose to use the TEQ surrogate for evaluating 2,3,7,8-TCDD because data on 2,3,7,8-TCDD emissions were not available for analysis. Both EPA's MACT program and the ongoing Office of Research and Development's Dioxin Reassessment Study predominantly report emission estimates on a 2,3,7,8-TCDD TEQ basis. Therefore, to maximize the number of source categories for which national estimates could be determined on a common basis and best carry out the objectives of section 112(c)(6), EPA chose to use the TEQ method for inventorying 2,3,7,8-TCDD and 2,3,7,8-TCDF as specified under section 112(c)(6).