ORAL ARGUMENT NOT YET SCHEDULED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AMERICAN FARM BUREAU FEDERATION, *et al.* Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.	Docket No. 06-1410 (and consolidated cases)

On Petitions for Review of Final Actions of the United States Environmental Protection Agency

OPENING BRIEF OF AMERICAN LUNG ASSOCIATION, ENVIRONMENTAL DEFENSE, AND NATIONAL PARKS CONSERVATION ASSOCIATION

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Dated: October 2, 2007

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

In accordance with Circuit Rule 28(a)(1), Petitioners American Lung Association, Environmental Defense, and National Parks Conservation Association submit this certificate as to parties, rulings, and related cases.

(A) Parties, Intervenors and *Amici* in case 06-1410 and consolidated cases

(i) Petitioners:

06-1410: American Farm Bureau Federation and National Pork Producers Council

06-1411: American Lung Association, Environmental Defense, and National Parks Conservation Association

06-1413: National Mining Association. On May 23, 2007 the National Mining Association filed a motion to voluntarily withdraw its petition for review. The Court granted the motion on May 31, 2007.

06-1414: Newmont USA Ltd dba Newmont Mining Corporation. On June 12, 2007 Newmont filed a motion to dismiss its petition for review and to withdraw as an intervenor on the side of the EPA. The Court granted the motion on July 5, 2007.

06-1415: National Cattlemen's Beef Association

06-1416: States of California, Connecticut, Delaware, Illinois, Maine, New Hampshire, New Jersey, New York, New Mexico, Oregon, Rhode Island, Vermont, Commonwealth of Pennsylvania Department of Environmental Protection, District of Columbia, and South Coast Air Quality Management District.

06-1417: Agricultural Retailers Association

06-1418: Utility Air Regulatory Group. On May 8, 2007 the Utility Air Regulatory Group filed a motion to dismiss its petition for review, which the Court granted on July 5, 2007.

06-1419: Fine Particulate Matter Petitioners Group. On May 8, 2007 the Fine Particulate Matter Petitioners Group filed a motion to dismiss its petition for review, which the Court granted on June 4, 2007.

(ii) Respondent:

The Respondent in these consolidated cases is the U.S. Environmental Protection Agency.

(iii) Intervenors:

On the side of Respondent U.S. Environmental Protection Agency's action on the national ambient air quality standards for fine particulate matter the American Chemistry Council, American Coke and Coal Chemicals Institute, American Forest and Paper Association, Inc., American Iron and Steel Institute, American Petroleum Institute, Chamber of Commerce of the United States of America, Corn Refiners Association, Inc., Council of Industrial Boiler Owners, National Association of Manufacturers, National Cotton Council of America, National Oilseed Processors Association, National Petrochemical & Refiners Association, Portland Cement Association, and Utility Air Regulatory Group. On the side of Respondent U.S. Environmental Protection Agency's action on the national ambient air quality standards for coarse particulate matter: the Alliance of Automobile Manufacturers, the Coarse Particulate Matter Intervenors Group, the National Cattlemen's Beef Association, the American Farm Bureau Federation, the National Pork Producers Council, and the National Mining Association.

(iv) *Amici Curiae*:

In support of State Petitioners: the Commonwealth of Massachusetts, the State of Arizona, and the State of Maryland. In support of Environmental Petitioners, the American Thoracic Society, American Academy of Pediatrics, American Association of Cardiovascular

and Pulmonary Rehabilitation, National Association for the Medical Direction of Respiratory Care, American Medical Association, and American College of Chest Physicians.

In support of Respondent U.S. Environmental Protection Agency, the National Association of Home Builders.

(B) Circuit Rule 26.1 Disclosure for Petitioner

American Lung Association. American Lung Association has no parent companies, and no publicly held company has a 10 percent or greater ownership interest in the American Lung Association.

American Lung Association, a corporation organized and existing under the laws of the State of Maine, is a national nonprofit organization dedicated to the conquest of lung disease and the promotion of lung health.

Environmental Defense. Environmental Defense has no parent companies, and no publicly held company has a 10 percent or greater ownership interest in Environmental Defense.

Environmental Defense, a corporation organized and existing under the laws of the State of New York, is a national nonprofit environmental organization dedicated to creating innovative, equitable and cost-effective solutions for the most urgent environmental problems.

National Parks Conservation Association. National Parks Conservation Association has no parent companies, and no publicly held company has a 10 percent or greater ownership interest in National Parks Conservation Association.

National Parks Conservation Association, a corporation organized and existing under the laws of the District of Columbia, is a nonprofit membership organization dedicated to protecting and enhancing America's National Park System for present and future generations.

(C) Rulings Under Review

American Lung Association, Environmental Defense, and National Parks Conservation Association seek review of the final action taken by respondent at 71 Fed. Reg. 61144 (October 17, 2006) entitled, "National Ambient Air Quality Standards for Particulate Matter; Final Rule." Certain other petitioners in these consolidated cases also seek review of the final action taken by respondent at 71 Fed. Reg. 61236 (October 17, 2006) entitled, "Revisions to Ambient Air Monitoring Regulations; Final Rule."

(D) Related Cases

American Lung Association, Environmental Defense, and National Parks Conservation Association are presently unaware of any related cases.

DATED: October 2, 2007

Respectfully submitted,

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

FEDERAL CASES

FEDERAL STATUTES

FEDERAL REGISTER NOTICES

GLOSSARY

Act	The federal Clean Air Act, 42 U.S.C. §§ 7410 *et seq.*
ALA	American Lung Association
CASAC	Clean Air Scientific Advisory Committee
EPA	United States Environmental Protection Agency
$\mu g/m^3$	Micrograms per cubic meter. A measure of the concentration of a substance in a volume of air.
NAAQS	National Ambient Air Quality Standards
$PM_{2.5}$	Particulate matter having a nominal aerodynamic diameter of 2.5 micrometers or smaller. Also referred to as fine particulate matter.
PM_{10}	Particulate matter having a nominal aerodynamic diameter of 10 micrometers or smaller.
$PM_{10-2.5}$	Particulate matter having a nominal aerodynamic diameter that is between 2.5 and 10 micrometers. Also referred to as the coarse particulate matter.
TSP	Total Suspended Particulates. Represents the range of particles that may be suspended in air. Includes particles up to 45 to 50 micrometers in diameter.

JURISDICTIONAL STATEMENT

(A) Agency. Respondent U.S. Environmental Protection Agency ("EPA") has jurisdiction to promulgate and revise national ambient air quality standards ("NAAQS") under the Clean Air Act ("Act"). 42 U.S.C. §§ 7408, 7409.

(B) Court of Appeals. This Court has jurisdiction to review EPA's promulgation of the NAAQS challenged in this proceeding. 42 U.S.C. § 7607(b)(1).

(C) Timeliness. The petition for review herein was timely filed on December 15, 2006, within sixty days of the publication of the challenged final action in the *Federal Register* on October 17, 2006, 71 Fed. Reg. 61144 [JA___] (hereinafter "2006 Final Rule"). 42 U.S.C. § 7607(b)(1).

STATUTES AND REGULATIONS

Pertinent statutes and regulations appear in an addendum to this brief.

STATEMENT OF ISSUES

Whether EPA acted unlawfully or arbitrarily in:

1. Refusing to strengthen the primary NAAQS for particulate matter with a diameter of 2.5 microns or smaller ("$PM_{2.5}$") in order to protect public health;

2. Refusing to adopt a more protective secondary NAAQS for $PM_{2.5}$ in order to address adverse impacts on visibility; and

3. Revoking the primary annual NAAQS for particulate matter with a diameter of 10 microns or smaller ("PM_{10}").

NATURE OF THE CASE, COURSE OF PROCEEDINGS AND DISPOSITION IN THE AGENCY

On December 15, 2006, American Lung Association, *et al.* ("Petitioners") filed a petition for review in this court challenging EPA's final agency action published in the Federal Register

on October 17, 2006 (71 Fed. Reg. 6114 [JA___]), revising the NAAQS for particulate matter under section 109 of the Clean Air Act, 42 U.S.C. § 7409.

STATEMENT OF FACTS

A. The Statute

Congress enacted the Clean Air Act Amendments of 1970 as "a drastic remedy to what was perceived as a serious and otherwise uncheckable problem of air pollution." *Union Elec. Co. v. EPA*, 427 U.S. 246, 257 (1976). The NAAQS are at the center of Congress' strategy in the Act to address air pollution. These standards define whether an area has "clean" or "dirty" air, and, as a result, the pollution controls that must be adopted in an area. *See, e.g.*, 42 U.S.C. §§ 7410, 7502, and 7511-7514a.

Section 108 of the Act directs EPA to publish a list of air pollutants, the emissions of which "cause or contribute to air pollution which may reasonably be anticipated to endanger either public health or welfare." *Id.* § 7408(a)(1). For each listed pollutant, EPA must prepare "air quality criteria" that collect and present information "reflect[ing] the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of such pollutant in the ambient air, in varying quantities." *Id.* § 7408(a)(2).

For each of these pollutants, EPA is to promulgate national primary and secondary ambient air quality standards. *Id.* § 7409(a). The primary standards are those that, "the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health." 42 U.S.C. § 7409(b)(1). The secondary standards are those that, "the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, [are] requisite to protect the

public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air." *Id.* § 7409(b)(2). The Act provides that the term "welfare" includes effects on visibility. *Id.* § 7602(h).

The Act requires EPA to review the criteria documents and standards every five years and "make such revisions in such criteria and standards and promulgate such new standards as may be appropriate in accordance with section 108 and subsection (b) of [section 109]." 42 U.S.C. § 7409(d)(1). As part of that review, EPA has long found it useful to prepare a "staff paper" to "help[] bridge the gap between the scientific review of health and welfare effects contained in the criteria document and the judgments required of the Administrator in setting ambient standards." 52 Fed. Reg. 24634, 24636 (July 1, 1987) [JA___] (hereinafter "1987 Final Rule").

Section 109(d)(2) of the Act further requires EPA to appoint an independent scientific review committee to review the criteria documents and NAAQS every five years and to recommend to the Administrator any new standards and any revisions of existing standards and criteria as may be appropriate. 42 U.S.C. § 7409(d)(2). The "findings, recommendations and comments" of this scientific review committee are given special weight under the Act and must be included in the statement of basis of pertinent rules. 42 U.S.C. § 7607(d)(3). "[I]f the proposal differs in any important respect from any of these recommendations, [the statement of basis must include] an explanation of the reasons for such differences." *Id.*

In fulfillment of section 109(d)(2), EPA established the Clean Air Scientific Advisory Committee ("CASAC").[1] CASAC typically reviews the Staff Paper and Criteria Document and

[1] *See* U.S. EPA Charter: Clean Air Scientific Advisory Committee (filed with Congress Aug. 5, 2005) (available at www.fido.gov/facadatabase/docs_charters%5C719_Charter_(2005-11-21-08-12-11).pdf).

offers its own set of findings and recommendations. *See, e.g.*, Letter from Dr. Rogene Henderson, Chair, CASAC, to Stephen Johnson, Administrator, EPA, "EPA's Review of the National Ambient Air Quality Standards for Particulate Matter (Second Draft PM Staff Paper, January 2005)" (June 6, 2005) [JA___] (hereinafter "CASAC Letter I").

B. History of Particulate Matter Standards

Pursuant to Clean Air Act section 109, EPA promulgated the original standards for particulate matter on April 30, 1971. 36 Fed. Reg. 8186 [JA___]. The original standards established limits for the total suspended particulate ("TSP"), which included particles up to 45 or 50 micrometers in diameter. *See* 1987 Final Rule at 24635 [JA___].

In 1987, EPA revised the standards for particulate matter, replacing the TSP indicator with one that only included "particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers" ("PM_{10}"). 1987 Final Rule at 24634 [JA___]. EPA found these smaller particles to be of greater health concern because they can penetrate deeper into the respiratory tract, where they pose "markedly greater" risks. *Id.* at 24639 [JA___]. EPA established an annual primary PM_{10} standard of 50 micrograms per cubic meter ("$\mu g/m^3$") to be achieved on average over a three-year period. *Id.* at 24663 [JA___]. EPA also set a 24-hour primary standard of 150 $\mu g/m^3$, not to be exceeded more than three times over a three-year period. *Id.* [JA___]. EPA established annual and 24-hour secondary standards at the same levels as the primary standards. *Id.* [JA___].

Frustrated by the lack of progress toward attainment of the NAAQS EPA had promulgated to date, Congress codified in the 1990 Amendments to the Clean Air Act specific requirements and deadlines for meeting the standards. *See South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882, 887 (D.C. Cir. 2006). These additional requirements for particulate matter

nonattainment areas are provided in Subpart 4 of Title I, Part D of the Act, 42 U.S.C. §§ 7513 – 7513b.

In 1997, EPA adopted a second round of revisions to the NAAQS for particulate matter. 62 Fed. Reg. 38652 (July 18, 1997) [JA___] (hereinafter "1997 Final Rule"). EPA noted that since it adopted the 1987 standards, significant new community epidemiological studies had been conducted that provided "evidence that serious health effects (mortality, exacerbation of chronic disease, increased hospital admissions, etc.) are associated with exposures to ambient levels of PM . . . even at concentrations below current U.S. PM standards." 61 Fed. Reg. 65638, 65641 (Dec. 13, 1996) [JA___] (hereinafter "1996 Proposed Rule"). EPA revised the standards to include separate indicators for both the fine and coarse fractions of PM_{10}. 1997 Final Rule at 38667 [JA___]. EPA incorporated an annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ and a 24-hour $PM_{2.5}$ standard of 65 $\mu g/m^3$. *Id.* at 38679 [JA___]. EPA also revised the 24-hour PM_{10} standard to consider the three-year average of the 99th percentile of daily monitored readings[2] and retained the annual PM_{10} standards adopted in 1987. *Id.* [JA___]. EPA concluded that the annual $PM_{2.5}$ standard should be set so as to protect against the range of health effects associated with both long- and short-term exposures and selected as the standard the lowest annual average of daily concentrations reported in epidemiological studies that identified short-term health effects. *Id.* at 38675-76 [JA___]. EPA selected the 24-hour $PM_{2.5}$ standard level to provide supplemental health protection against peak daily $PM_{2.5}$ concentrations. *Id.* at 38675-76 [JA___].

[2] These percentile forms look at the three-year average of the peak daily concentrations (in this case the 99th percentile) measured each year, and compare that average to the standard. If a daily measurement is recorded each day, the 99th percentile represents approximately the fourth highest concentration measured for the year (*i.e.*, there were higher concentrations for only one percent of the 365 days). This "concentration-based" form differs from the "exceedance-based" form, which looks only at the number of days when measured concentrations exceeded the 24-hour limit.

As part of the 1997 rulemaking, EPA also recognized that particulate matter caused adverse visibility impacts. 1997 Final Rule at 38679-83 [JA___]. Rather than adopting separate standards to remedy these impacts, however, EPA set the secondary standards identical to the suite of primary standards. *Id.* at 38683 [JA___]. EPA explained that setting a national standard to address visibility in all areas was not possible due to regional differences in visibility impairment caused by other factors such as relative humidity. *Id.* at 38680 [JA___].

This court ultimately upheld the 1997 $PM_{2.5}$ standards in *American Trucking Ass'ns, Inc. v. EPA*, 283 F.3d 355 (D.C. Cir. 2002). In the earlier challenge of these standards, however, the court vacated the revised PM_{10} standards, concluding that EPA had not provided a rational basis for retaining the use of the PM_{10} indicator to address the coarse fraction of particulate matter pollution. *Am. Trucking Ass'ns, Inc. v. EPA*, 175 F.3d 1027, 1055 (D.C. Cir. 1999). The effect of this ruling was to restore the 1987 PM_{10} standards. 69 Fed. Reg. 45592 (July 30, 2004) [JA___].

The action being challenged here is EPA's 2006 review and revision of the particulate matter NAAQS. As EPA has done in prior NAAQS rulemakings, it prepared a new air quality criteria document with the latest scientific information on particulate matter pollution. EPA, "Air Quality Criteria for Particulate Matter" (October 2004) [JA___] (hereinafter "Criteria Document"). EPA also prepared a staff paper assessing the findings of the Criteria Document and offering recommendations on whether and how to revise the PM NAAQS. EPA, "Review of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information" (Dec. 2005) [JA___] (hereinafter "Staff Paper"). Finally, CASAC reviewed the Criteria Document and Staff Paper and offered its own assessment on the scientific findings and recommendations. *See, e.g.*, CASAC Letter I [JA___].

In the review leading to the 2006 rulemaking, EPA staff recommended that "consideration . . . be given to revising the current $PM_{2.5}$ primary standards to provide increased public health protection from the effects of both long- and short-term exposures to fine particles in the air." Staff Paper at 5-45 [JA___]. The Staff Paper recommended two alternatives: (1) retaining the 1997 annual standard of 15 $\mu g/m^3$ together with a revised 24-hour standard in the range of 25 to 35 $\mu g/m^3$ based on a 98^{th} percentile form for the lower end of the range or a 99^{th} percentile form for the upper end of the range; or (2) revising the annual standard within the range of 12 to 14 $\mu g/m^3$ together with a revised 24-hour standard in the range of 30 to 40 $\mu g/m^3$. *Id.* at 5-46 [JA___]. Staff further recommended a separate secondary $PM_{2.5}$ standard, set between 20 and 30 $\mu g/m^3$ with a 4- to 8-hour averaging period, to address PM-related visibility impairment. *Id.* at 7-13 [JA___]. Finally, the staff recommended revising the indicator for coarse particulate matter from PM_{10} to $PM_{10-2.5}$ (*i.e.*, to measure only particles with diameters between 2.5 and 10 microns), and replacing the annual and 24-hour PM_{10} standards with a single 24-hour $PM_{10-2.5}$ standard. *Id.* at 5-71 [JA___].

After reviewing the Staff Paper and Criteria Document, CASAC recommended setting the 24-hour $PM_{2.5}$ standard in the range of 30 to 35 $\mu g/m^3$ based on a 98^{th} percentile form "in concert with" revising the annual standard in the range of 13 to 14 $\mu g/m^3$. CASAC Letter I at 7 [JA___]. CASAC rejected the option of retaining the annual standard at 15 $\mu g/m^3$. *Id.* [JA___]. With respect to the secondary standard, CASAC endorsed the EPA staff approach as an acceptable starting point while noting that the recommended levels might be too lenient. *Id.* at 9 [JA___]; *see also* Letter from Dr. Rogene Henderson, Chair, CASAC, to Stephen Johnson, Administrator, EPA, at 5 (Mar. 21, 2006) [JA___] (hereinafter "CASAC Letter III"). CASAC further endorsed the recommended coarse particulate matter standard but did not endorse EPA's

proposal to exempt specific sources of particles such as agriculture and mining. Letter from Dr. Rogene Henderson, Chair, CASAC, to Stephen Johnson, Administrator, EPA, at 5 (Sept. 15, 2005) [JA___] ("CASAC Letter II"); CASAC Letter III at 4 [JA___].

EPA's January 17, 2006 notice proposed retaining the annual $PM_{2.5}$ standard of 15 $\mu g/m^3$, and revising the level of the 24-hour standard from 65 to 35 $\mu g/m^3$. 71 Fed. Reg. 2620, 2653 [JA___] (hereinafter "2006 Proposed Rule"). EPA also proposed revoking the annual PM_{10} standard and replacing the 24-hour PM_{10} standard with a new 24-hour coarse particle standard using $PM_{10-2.5}$ as the indicator with a 98^{th} percentile concentration form. *Id.* at 2674 [JA___]. EPA also proposed secondary standards to address visibility impacts that were identical to the primary standards, most notably the newly proposed 24-hour $PM_{2.5}$ standard. *Id.* at 2681 [JA___].

EPA's proposal drew heavy criticism from a wide range of medical and public health groups. It also drew an unusual rebuke from CASAC. First, on March 21, 2006, CASAC wrote to the EPA Administrator requesting EPA to reconsider its decisions on the annual primary $PM_{2.5}$ standard, the secondary $PM_{2.5}$ standard and the 24-hour primary $PM_{10-2.5}$ standard. CASAC Letter III at 2-6 [JA___]. When EPA declined to accept CASAC's recommendations, CASAC sent another letter on September 29, 2006, strongly objecting to EPA's decision to retain the primary annual standard for $PM_{2.5}$, noting:

> It is the CASAC's consensus scientific opinion that the decision to retain without change the annual $PM_{2.5}$ standard does not provide an "adequate margin of safety . . . requisite to protect the public health" . . . , leaving part of the population of this country at significant risk of adverse health effects from exposure to fine PM.

Letter from Dr. Rogene Henderson, Chair, CASAC, to Stephen Johnson, Administrator, EPA, at 2 (Sept. 29, 2006) [JA___] (hereinafter "CASAC Letter IV").

In the final rule promulgated on October 17, 2006, EPA adopted its proposed changes to the $PM_{2.5}$ standards, dismissing most of CASAC's recommendations, but abandoned most of the proposed changes to the coarse particulate matter standard. 2006 Final Rule at 61177 and 61197 [JA___]. The final rule reverted back to using PM_{10} as the indicator for the coarse fraction and retained the 1987 24-hour standard of 150 $\mu g/m^3$ using the previous exceedance-based form instead of the proposed concentration-based form. *Id.* at 61202 [JA___]. EPA finalized its revocation of the annual PM_{10} standard, *id.*, and its proposal to set secondary standards for visibility protection identical to the primary standards. *Id.* at 61210 [JA___].

STANDARD OF REVIEW

The Act's judicial review provision provides for reversal of EPA action found "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A). In determining whether EPA's actions comport with statutory requirements, this court applies the two-step analysis of *Chevron, U.S.A., Inc. v. NRDC,* 467 U.S. 837 (1984). *South Coast Air Quality Mgmt. Dist.*, 472 F.3d at 891. Under step one of *Chevron*, the Court must "give[] effect" to congressional intent discerned using "traditional tools of statutory construction." 467 U.S. at 843 n.9. When "the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 842-43. Where Congress has failed to make its intent clear, step two of *Chevron* provides for judicial deference to reasonable agency interpretations of the statute. 467 U.S. at 845. Unless otherwise expressly indicated, references in this brief to "unlawful" agency action address both violation of congressional intent under *Chevron* step one and unreasonable agency interpretation under step two.

In addition to meeting the statutory requirements of the Act, the Agency must also provide a reasonable basis for its decisions. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971); *Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1130, 1145 (D.C. Cir. 1980). Agency action is arbitrary and capricious if the agency has not "identified and explained the reasoned basis for its decision," *Transactive Corp. v. United States*, 91 F.3d 232, 236 (D.C. Cir. 1996), or if it has reached a conclusion that is unsupported by substantial evidence. *Ass'n of Data Processing Serv. Orgs. v. Bd. of Governors*, 745 F.2d 677, 683-84 (D.C. Cir. 1984). This court has explained that while review of agency actions, especially actions of a technical nature, is deferential, the court must still undertake a substantial inquiry into the underlying facts that is searching and careful. *Lead Indus. Ass'n*, 647 F.2d at 1145; *see also Am. Trucking Ass'ns*, 283 F.3d at 362.

SUMMARY OF ARGUMENT

EPA's decision to retain the annual $PM_{2.5}$ standard was inconsistent with the Act's precautionary directive to protect public health with an adequate margin of safety. EPA unlawfully used uncertainty to justify ignoring the scientific consensus recommending a more protective standard and relevant studies demonstrating serious health impacts in areas that are meeting the current annual standard. EPA's decision was also arbitrary and unlawful because it ignored the need for an annual standard to control short-term $PM_{2.5}$ exposures of concern.

EPA's use of the primary $PM_{2.5}$ standards to address adverse visibility impacts was also arbitrary because EPA made no demonstration that these standards had any rational connection to the visibility problems identified.

EPA's revocation of the annual PM_{10} standard is precluded by the Act, which codifies the annual standard and limits EPA's ability to undo Congress' strategy for addressing PM_{10} pollution.

Revocation was also arbitrary because it relied only on scientific evidence regarding long-term exposures to PM_{10}, ignoring the need for the annual standard to control short-term exposures.

STANDING

Petitioner American Lung Association is a national nonprofit organization dedicated to the conquest of lung disease and the promotion of lung health. *See* Declaration of Joseph Bergen (Att. B). Petitioner Environmental Defense is a national nonprofit environmental organization dedicated to, among other things, protecting the public health and welfare from air pollution. *See* Declaration of Megan Contakes (Att. B). Petitioner National Parks Conservation Association is a national nonprofit organization dedicated to protecting and enhancing America's national park system. *See* Declaration of Mark Wenzler (Att. B). Each of these Petitioners has members who live, work, or recreate in areas adversely affected by particulate matter pollution.

Particulate matter pollution is associated with a variety of severe adverse health effects including premature death from heart and lung disease, aggravation of asthma and other respiratory ailments, decreased lung function, development of chronic respiratory disease, increased cardiac-related risk, and increased hospital and emergency room visits for respiratory and cardiac conditions. 2006 Final Rule at 61154-55 [JA___]; 2006 Proposed Rule at 2627-36 [JA___]. By some estimates, particulate matter pollution is responsible for thousands of premature deaths annually. 2006 Final Rule at 61154 [JA___]. In addition to health impacts, particulate matter pollution is the main cause of visibility impairment in the nation's cities and national parks, thereby adversely impacting public welfare in a substantial way. *See* http://epa.gov/pm/naaqsrev2006.html; *see also* 2006 Proposed Rule at 2675-77 [JA___].

The challenged rule allows to continue the exposure of Petitioners' members to levels of particulate matter pollution associated with a variety of adverse health and welfare effects,

including those described above and deprives Petitioners' members of the level of health and welfare protection guaranteed by the Act. Further support for Petitioners' standing appears in the materials cited in this brief and in the appended declarations. For all the foregoing reasons, Petitioners have standing to bring this action. *See, e.g.*, *Natural Res. Def. Council v. EPA*, 464 F.3d 1, 5-7 (D.C. Cir. 2006) (finding organization had standing on behalf of members to challenge EPA failure to adopt emission standards required under Clean Air Act); *Natural Res. Def. Council v. EPA*, 489 F.3d 1364, 1372-74 (D.C. Cir. 2007) (same).

ARGUMENT

I. EPA'S REFUSAL TO ADOPT A MORE HEALTH-PROTECTIVE ANNUAL $PM_{2.5}$ STANDARD WAS UNLAWFUL AND ARBITRARY.

A. EPA Violated the Clean Air Act by Failing to Adopt an Annual $PM_{2.5}$ Standard that Protects Public Health with an Adequate Margin of Safety.

Petitioners here join in the arguments of State Petitioners New York, *et al.*, regarding EPA's failure to set an annual $PM_{2.5}$ standard that protects public health with an adequate margin of safety. In refusing to strengthen the annual standard below the current level of 15 $\mu g/m^3$, EPA ignored "clear and convincing" evidence that adverse health effects continue to occur in areas with pollution levels below the current standard. CASAC Letter IV at 1 [JA___]. CASAC identified specific evidence showing that adverse effects continue to occur where long-term $PM_{2.5}$ exposures are at or below the current annual standard level of 15 μg/m3:

> Studies described in the PM Staff Paper indicate that short-term effects of $PM_{2.5}$ persist in cities with annual $PM_{2.5}$ concentrations below the current standard. In a Canadian study (Burnett *et al.*, 2000; and Burnett and Goldberg, 2003), significant associations with total and cardiovascular mortality were present at a long-term mean $PM_{2.5}$ concentration of 13.3 μg/m3. There were also positive findings in studies in Phoenix, AZ (Mar *et al.*, 1999, 2003) and in Santa Clara County, CA (Lipsett *et al.*, 1997) in which long-term mean concentrations of $PM_{2.5}$ were approximately 13 μg/m3.

CASAC Letter III at 3-4 [JA___].

Despite CASAC's insistence that these studies were relevant to determining the level of the annual standard, EPA nonetheless rejected CASAC's advice, concluding that it was "more appropriate" to rely solely on long-term exposures studies as the basis for the annual standard. 2006 Final Rule at 61174 [JA___]. As described in section I.B below, EPA's rationale for ignoring these studies is completely arbitrary. More fundamentally, however, it is inconsistent with case law requiring EPA to consider all relevant studies. *Am. Trucking Ass'ns*, 175 F.3d at 1052-53 (rejecting EPA decision to ignore studies based on difficulty of quantifying impact).

Moreover, even the long-term studies, to which EPA limited its review for the annual standard, demonstrate health impacts in areas with long-term concentrations below 15 $\mu g/m^3$. As Petitioners explained in their comments, these long-term studies provided clear evidence of a linear dose response relationship between $PM_{2.5}$ pollution and mortality down to the lowest levels studied, that is, 11 $\mu g/m^3$ in the Six Cities study, and 9 $\mu g/m^3$ in the American Cancer Society study. Comments of the American Lung Association, *et al.* at 27 (April 17, 2006) [JA___] (hereinafter "ALA Comments"). Instead of looking at the range of long-term concentrations that these studies show are associated with adverse public health impacts, EPA averaged these data together, claiming that the health impacts are less certain at the lower end of the studied ranges. 2006 Final Rule at 61175 [JA___].

EPA's decision to rely solely on the averages of these studies is inconsistent with the "preventative" and "precautionary" nature of the Act. As this Court has explained, "the Administrator must . . . decide what margin of safety will protect the public health from the pollutant's adverse effects – not just known adverse effects, but those of scientific uncertainty or that 'research has not yet uncovered.'" *Am. Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998) (quotations omitted); *see also Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 457, 464-71

(2001). In considering uncertainty, EPA must err on the side of caution in terms of protecting human health and welfare. *Am. Trucking Ass'ns*, 283 F.3d at 369 ("The Act requires EPA to promulgate protective primary NAAQS even where . . . the pollutant's risks cannot be quantified or 'precisely identified as to nature or degree.'") (quoting 2006 Final Rule at 38653).[3]

The Administrator simply cannot defend his treatment of the scientific evidence as being an appropriate exercise of his discretion when it conflicts with the judgment of 20 of the nation's leading scientific experts who are members of CASAC. Moreover, as CASAC noted:

> CASAC's recommendations [on the annual $PM_{2.5}$ standard] were consistent with the mainstream scientific advice that EPA received from virtually every major medical association and public health organization that provided their input to the Agency, including the American Medical Association, the American Thoracic Society, the American Lung Association, the American Academy of Pediatrics, the American College of Cardiology, the American Heart Association, the American Cancer Society, the American Public Health Association, and the National Association of the Local Boards of Health. Indeed, to our knowledge there is no science, medical or public health group that disagrees with this very important aspect of the CASAC's recommendations.

CASAC Letter IV at 2 [JA___]. Instead of recognizing the clear consensus of scientific opinion about the health consequences associated with long-term $PM_{2.5}$ exposures and addressing those consequences by tightening the annual standard, the Administrator elected to leave in place a standard that is demonstrably inadequate. This decision is without merit as a matter of either science or law.

[3] EPA justified its use of mean values from the studies on the ground that the evidence of association with adverse health effects is "strongest" at the mean. *See, e.g.*, EPA, "Responses to Significant Comments on the 2006 Proposed Rule" at 41 (Sept. 2006) [JA___] (hereinafter "Responses to Comments"). But the Act does not allow EPA to limit health protection to only those exposures with the most certain adverse impacts.

B. EPA Acted Arbitrarily and Unlawfully in Refusing to Adopt a Stronger Annual $PM_{2.5}$ Standard Because the 24-Hour Standard Alone Does Not Protect Against All Short-Term Exposures Linked with Adverse Public Health Impacts.

Even if the Act permitted the broad discretion that EPA has asserted here, which it does not, EPA's decision to retain the annual standard without considering whether that standard adequately protects against adverse short-term day-to-day exposures was arbitrary and capricious. As EPA admits, the 1997 $PM_{2.5}$ standards do not provide adequate protection against impacts from short-term exposures. 2006 Final Rule at 61161 [JA___]. EPA's argument for retaining the 1997 annual standard of 15 $\mu g/m^3$ is premised on the claim that daily exposures of concern can be addressed through a single limit on peak 24-hour concentrations. *Id.* [JA___]. EPA, however, fails to explain how such a limit on peak concentrations can address the lower, day-to-day concentrations that EPA admits are likely to be responsible for most of the deaths caused by short-term exposures to $PM_{2.5}$. In order to provide the requisite protection, the array of day-to-day exposures must be reduced to be below those that studies have found to be associated with serious health impacts. The Administrator acted arbitrarily and illegally in rejecting the recommendations of CASAC and his own staff to control these exposures of concern by lowering the limit on the annual average daily concentrations allowed.

EPA concedes that keeping daily $PM_{2.5}$ concentrations below 35 $\mu g/m^3$ does not protect against the full range of daily exposures of concern:

> [The Agency] did not propose a 24-hour standard with a 98th percentile based on a view that only days above 35 $\mu g/m^3$ present a risk from short-term exposure to $PM_{2.5}$. EPA focused on the 98th percentile value as a way to identify the distribution of daily air quality levels over a year that was somewhat below the distribution of daily air quality levels expected to be associated with serious health effects.

Responses to Comments at 37 [JA___].[4] Yet EPA nowhere demonstrates how setting a standard that only limits the peak daily concentration is adequate to ensure that the rest of the daily exposures allowed are below the range of concentrations associated with serious health effects.

EPA claims that a 24-hour standard of 35 $\mu g/m^3$ is the appropriate level of control to protect against public health impacts from short-term exposures because not every study where the peak concentrations were below 35 $\mu g/m^3$ found statistically significant associations with adverse health impacts. 2006 Final Rule at 61169 [JA___]. This rationale, however, is logically flawed. The mixed results at lower peak exposures only show that it is not solely the peak concentrations that are responsible for the health impacts. Instead of comparing the complete distribution of concentrations in those studies finding a significant association and in those that did not, EPA arbitrarily compares only this single point – the 98th percentile peak – that has no special connection to the health impacts found in these studies. EPA's approach tells us only that in all of the studies where peak concentrations were over 35 $\mu g/m^3$, the total distribution of concentrations were such that they resulted in public health impacts. It does not, and cannot, show that as long as peak concentrations are kept below 35 $\mu g/m^3$, the resulting distribution of short-term exposures will be such that public health will be protected with an adequate margin of safety. To the contrary, as EPA itself notes, several studies found statistically significant impacts even where the 98th percentile peak was below 35 $\mu g/m^3$. *Id.* [JA___]; *see also* Staff Paper at 5-30 to 5-31 [JA___].

[4] EPA acknowledges that no threshold has been established below which short-term exposures are no longer of concern. 2006 Proposed Rule at 2635 [JA___]; Staff Paper at 3-55 to 3-56 [JA___].

To provide the requisite protection against health effects from short-term $PM_{2.5}$ exposures, EPA must set standards that lower daily exposures across the board, not just the peak exposures. As EPA itself explained:

> [M]uch of the risk related to daily exposures results from the large number of days during which the 24-hour average concentrations are in the low- to mid-range . . . . Thus, to reduce aggregate risk, it is necessary to shift the bulk of the distribution [of short-term exposures] to lower levels, not just to limit the concentration on days when the $PM_{2.5}$ concentrations are relatively high.

Staff Paper at 5-31 [JA___]. As CASAC observed, such standards need to control the annual average daily exposure to reflect the fact that "there is clear and convincing scientific evidence that significant human health effects occur in response to short-term and chronic particulate matter exposures [in areas where the annual average daily concentrations are] at and below 15 $\mu g/m^3$ . . . ." CASAC Letter IV at 1 [JA___].[5]

EPA provides only a single conclusory reference to how a 24-hour 35 $\mu g/m^3$ limit on the 98^{th} percentile peak concentrations *might* change more than just the peak short-term exposures. EPA offers, "While strategies that may be employed in the future to [attain the 24-hour standard] in any particular area are not yet defined, most such strategies are likely to move the broad distribution of $PM_{2.5}$ air quality values in an area lower, resulting in reductions in risk associated

[5] In 1997, EPA itself used a similar rationale in setting the annual $PM_{2.5}$ standard based on the average daily concentrations found in the short-term exposure studies in order to "require areas whose air quality concentrations are above those necessary for attainment to reduce $PM_{2.5}$ concentrations across a wide range of the 24-hour air quality distribution rather than just a few high 24-hour values, thus resulting in more significant risk reduction than would a 24-hour standard set so as to control the peak concentrations." 1996 Proposed Rule at 65653 [JA___]. EPA now claims that it should ignore short-term exposure studies in setting the annual standard, and that the 1997 annual standard only considered such short-term exposure studies because "the evidence from long-term exposure studies was judged to be too limited to serve as other than a secondary consideration in setting the level of the annual standard." 2006 Final Rule at 61174 [JA___]. This claim is simply untrue. There is no suggestion in the 1997 rulemaking that EPA would not have set an annual standard to protect against short-term exposures had more long-term exposure evidence been available.

with exposures to $PM_{2.5}$ levels across a wide range of concentrations." 2006 Proposed Rule at 2649 [JA___]. EPA offers no support for this statement and can only offer layers of hedging language regarding "likely" effects in "most" areas that adopt strategies. Such assertions do not provide a sufficient rational basis for EPA's decision to refuse to adopt a more protective annual standard.[6] *See Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855, 866 (D.C. Cir. 2001) (agency must support decisions with "substantial evidence -- not mere assertions").

To the contrary, the record demonstrates that lowering the 24-hour standard to 35 $\mu g/m^3$ without strengthening the annual standard will have little if any effect on the day-to-day concentrations in certain areas of the country where people are dying and being hospitalized as a result of short-term $PM_{2.5}$ exposures. EPA's risk assessment looked at how exposures in five sample cities would change under different combinations of annual and 24-hour standards.[7] The analysis shows that in two of the five cities, exposures are controlled by the 15 $\mu g/m^3$ annual $PM_{2.5}$ standard until the 24-hour standard is reduced to 30 $\mu g/m^3$ or lower. Staff Paper at 5-25 to 5-27 [JA___] (Figures 5-1 and 5-2). A 35 $\mu g/m^3$ standard does not change at all the daily concentrations people will breathe in these in these and similarly situated areas. Such an outcome cannot be defended as protecting health and providing an adequate margin of safety, because it is known that these cities suffer from demonstrated health impacts from short-term

[6] Of course EPA's claim misses the point anyway. It is not enough to predict that areas violating the 35 $\mu g/m^3$ standard may adopt measures that reduce more than just the 98th percentile peak concentrations. In order to defend the standard under the Act, EPA must show that in areas that are meeting the standard, public health will be protected. As explained above, EPA's approach provides no rational basis for such a conclusion.

[7] EPA's criticisms of its own risk assessment are irrelevant to the findings in that assessment regarding exposure levels. *See, e.g.*, 2006 Final Rule at 61152 [JA___] (noting uncertainties between concentration and health response). EPA's concerns relate to how alleged uncertainties regarding health thresholds affect the ability to translate predicted exposures into quantifiable impacts. EPA raises no concerns about whether the predicted exposure levels are valid.

$PM_{2.5}$ exposures[8] and that short-term health impacts have been found even in areas with annual averages below 15 $\mu g/m^3$. *Id.* at 5-32 [JA___]. EPA's decision to rely on the 24-hour standard set at 35 $\mu g/m^3$ without a more protective annual standard, therefore, is not rationally related to achieving the stated need of shifting the distribution of short-term exposures. There is simply no record basis supporting EPA's conclusion that controlling only the peak daily exposures will address all, or even most, of the "low- to mid-range" short-term exposures that have been linked to adverse health effects. EPA acted arbitrarily and illegally in rejecting CASAC's recommendation to tighten the annual standard so as to ensure that average daily concentrations are kept below those levels found by studies to be associated with the serious adverse health effects. 42 U.S.C. § 7409(a)(2); *see also Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983) (holding "agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made") (internal quotations omitted).

II. EPA'S RELIANCE ON THE PRIMARY $PM_{2.5}$ NAAQS TO ADDRESS ADVERSE VISIBILITY IMPACTS WAS ARBITRARY AND CAPRICIOUS.

There is widespread agreement that visibility deterioration from particle pollution is significant and represents a substantial adverse impact to public welfare. 2006 Proposed Rule at 2676-77 [JA___]. In reviewing the adequacy of the 1997 standards, EPA staff, with the concurrence of CASAC, concluded that the secondary standard for $PM_{2.5}$ should be revised from a 24-hour average to a 4- to 8-hour average and set within the range of 20 to 30 $\mu g/m^3$, depending on the percentile-based form of the standard. Staff Paper at 7-13 [JA___]; CASAC

[8] *See* Staff Paper at 4-6 to 4-7 [JA___] (describing selection process for sample cities and noting that each of these cities was included in epidemiologic studies that reported concentration-response relationships for $PM_{2.5}$ and mortality or hospital admissions).

Letter III at 5 [JA___]. In reviewing different types of information regarding "acceptable" visibility, staff found a "convergence" in the range of 40 to 60 km and concluded that scenic views are "significantly obscured" at concentrations of 35 to 40 $\mu g/m^3$. *Id.* at 7-7 and 7-8 [JA___]. Staff recommended a shorter (4- to 8-hour) averaging time because the correlations between fine particulate matter concentrations and visibility impacts are less influenced by humidity and more consistent across regions when concentrations are averaged over shorter daylight periods. Staff Paper at 7-6 [JA___].

Despite these findings and recommendations, EPA decided to keep the secondary standards identical to the revised suite of primary $PM_{2.5}$ standards – most notably the revised 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. 2006 Final Rule at 61208 [JA___]. The level of visibility impairment allowed under such a standard can be seen in the following photographs submitted as part of comments prepared by American Lung Association, *et al.*

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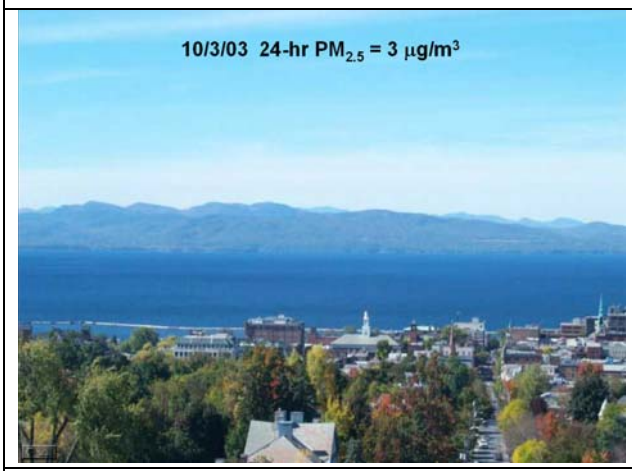
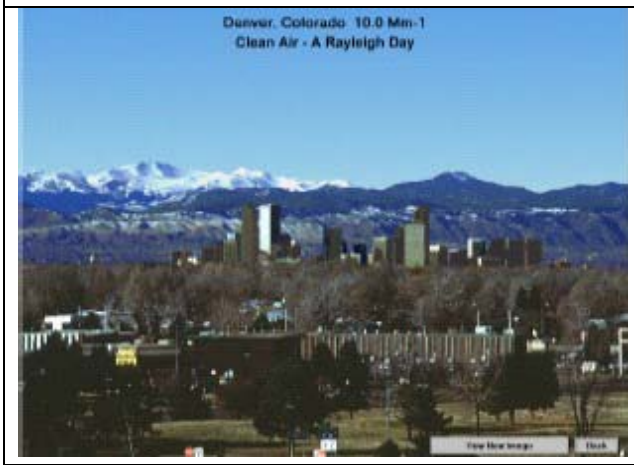
FIGURE A -- URBAN VISIBILITY[9]

Natural Visibility Conditions	EPA Standard $PM_{2.5} = 35\mu g/m^3$
Burlington VT	
	
Denver CO	
	

[9] ALA Comments at 74-75 [JA___]. Petitioners note that the photograph given for visibility in Washington, DC under the heading "EPA Standard" actually shows visibility at 30 $\mu g/m^3$.

Natural Visibility Conditions	EPA Standard $PM_{2.5} = 35\mu g/m^3$
Washington DC	
	
Chicago IL	
	

EPA's adoption of secondary standards that plainly do not protect public welfare from known and anticipated adverse effects was arbitrary and capricious, as further detailed below.

A. EPA's Decision Relies on the Baseless Claim that the Primary $PM_{2.5}$ Standards Provide Equivalent Protection to the Recommended Alternatives.

Rather than address the findings of the Staff Report and CASAC to define an acceptable degree of visibility impairment and select the form and level of a standard reasonably

demonstrated to protect public welfare from known and anticipated adverse visibility effects, EPA adopted the arbitrary premise that "it is appropriate to consider the protection the revised suite of primary $PM_{2.5}$ standards would provide against adverse effects on public welfare" in order to determine if anything additional is required. 2006 Final Rule at 61208 [JA___]. Even if one were to accept this as a reasonable approach for meeting the statutory requirement to establish a secondary standard, EPA's conclusion that the "relative protection provided by the proposed primary standards was equivalent or more protective than several of the 4-hour secondary standard alternatives in the range recommended by the Staff Paper and CASAC," *id.* [JA___], is based on one absurd argument after another.

Before addressing these arguments, it should be absolutely clear that the 24-hour standard of 35 $\mu g/m^3$ is not equivalent to a 4-hour standard in the range of 20 to 30 $\mu g/m^3$. Not only is the numerical level of the standard recommended by the Staff Report and CASAC obviously lower, but the difference in averaging time is also significantly different. An area could exceed 30 $\mu g/m^3$ during *every* 4-hour period in a given day and still meet a 24-hour average of 35 $\mu g/m^3$. Moreover, within a 24-hour averaging time, any given 4-hour period may be well above even the 35 $\mu g/m^3$ level to be achieved on average under the 24-hour standard. *See* CASAC Letter III at 6 [JA___]. EPA therefore cannot reasonably claim that these standards result in an equivalent or even a similar level of allowable ambient pollution.

To demonstrate what it claims to be "equivalence," EPA compared the percentage of counties projected to violate the revised primary 24-hour standard to the percentage of counties that would violate a 4-hour 30 $\mu g/m^3$ standard with a 95^{th} percentile form. 2006 Final Rule at 61207 [JA___]. EPA found that 27 percent of areas would violate the former and 24 percent

would violate the latter. *Id.* [JA___]. EPA therefore concluded the 24-hour standard provides equivalent or even more "relative protection." *Id.* at 61208 [JA___].

Setting aside the fact that this "comparison" only included an alternative toward the upper, or least-protective, end of the range of alternatives recommended by the Staff Report and CASAC, this demonstration is meaningless. For example, these numbers do not tell us whether the areas violating the two standards overlap or whether different areas suffer from different fine particulate problems. As CASAC pointed out, "[t]he cited comparability between percentages of counties not likely to meet a lenient sub-daily secondary standard and the proposed 24-hour primary standard is a numerical coincidence, and is not indicative of any fundamental relationship between visibility and annual $PM_{2.5}$ concentrations below the current standard." CASAC Letter III at 3-4 [JA___]. Simply put, EPA's "comparison" does not show that *any* of the 24 percent of counties projected to violate the CASAC-recommended sub-daily standards are among the 27 percent projected to violate the 24-hour standard. Thus, for all EPA's analysis shows, all of the counties violating the sub-daily standard could continue to do so even after all of the counties in the nation came into compliance with the 24-hour standard.

Remarkably, even after EPA acknowledges CASAC's point about the uselessness of this comparison, EPA persists in relying on it to defend its final decision. EPA responds to CASAC's comment with the *non sequitor* that "EPA does not believe that this coincidental similarity weighs against making the secondary standard identical to the revised primary standard." 2006 Final Rule at 61208 [JA___]. Of course, CASAC was not suggesting that the "similarity" weighed for or against the decision, *but that it was entirely irrelevant*, and that EPA's "comparison" provided no basis whatsoever for the conclusion that the two standards were in any way "equivalent." EPA nonetheless concludes, without any other basis that, "[t]he

current annual and revised 24-hour secondary standards will result in improvements in visual air quality in as many or more urban areas across the country as would the alternative approach of setting a sub-daily standard consistent with the upper portion of the ranges recommended by CASAC." *Id.* [JA___]. This claim lacks any rational basis and therefore does not provide sufficient grounds for upholding the agency's action. *See State Farm*, 463 U.S. at 43.

B. There is no Reasonable Basis for EPA's Conclusion that the 24-Hour Primary $PM_{2.5}$ Standard is Requisite to Protect Against Adverse Visibility Impacts.

By allowing itself to be sidetracked on this false basis for setting a secondary standard, EPA completely ignores the record before it and makes no attempt to analyze or determine the "level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects. . . ." 42 U.S.C. § 7409(b)(2).[10] First, EPA makes no determination regarding the degree of visibility protection the standards should achieve. In recommending the target level of visibility protection, the Staff Paper, based on the Criteria Document, evaluated public perception and valuation studies, surveyed local initiatives to address visibility, and reviewed photographic evidence and modeling. Staff Paper at 6-13 to 6-24 [JA___]. EPA's only treatment of this analysis was its conclusory dismissal that "these sources provide useful but still quite limited information on the range of levels appropriate for consideration in setting a national visibility standard primarily for urban areas, given the

[10] Instead of truly assessing the appropriate standards for protecting visibility, EPA reverts back to its faulty comparison of the two standards and offers the perfectly circular conclusion: "[T]he Administrator believes that a distinct secondary standard with a different averaging time, level, or form is not warranted at this time, . . . because no further change in averaging time, level, or form appears needed to achieve a comparable level of protection." 2006 Final Rule at 61208 [JA___]. Thus, according to EPA, once it concluded that the 24-hour primary standard was "equivalent" to the alternative standards, any changes to incorporate these alternatives were, by definition, pointless.

generally subjective nature of the public welfare effect involved." 2006 Final Rule at 61206 [JA___]. The final rule does not suggest what level *is* reasonably supported by these studies or, alternatively, what other data should be used to support another level of protection. Moreover, this out-of-hand dismissal of CASAC and staff conclusions ignores the fact that (1) Congress directed EPA to protect public welfare from *any known or anticipated* adverse impacts from visibility impairment, whether subjective or not, and, more importantly, (2) the careful analyses in the Criteria Document and Staff Paper show that there appears to be a "convergence" on the level of visibility impairment considered acceptable to the public (whose welfare is, after all, what the statute expressly requires the standard to protect) using a variety of techniques. EPA cannot simply ignore these findings and still claim that the secondary standard has a rational basis, much less that it is "based on" the Criteria Document. To the extent EPA has decided to dismiss the visibility impacts allowed by the standards as unworthy of regulatory attention, EPA must still provide an explanation of why. *See Am. Lung. Ass'n*, 134 F.3d at 392 (rejecting EPA's unexplained decision not to address short-term pollution episodes under the NAAQS for sulfur dioxide).

Without establishing a target level of protection, the remaining analysis of how best to achieve the "requisite" level of protection is wholly irrational. EPA's sole grounds for setting the secondary standard at a level identical to the primary is mere administrative convenience. The Agency's failure to identify a rational connection between its chosen secondary standard and any articulated public welfare benchmark for visibility protection renders its action arbitrary in the extreme. *See State Farm*, 463 U.S. at 43.

Further, EPA acted arbitrarily and capriciously in selecting the 24-hour average form of the secondary standard instead of a sub-daily 4- or 8-hour standard. First, as mentioned above, a

24-hour standard leaves room for peak short-term concentrations during daylight hours (*i.e.*, during the period when visibility effects are of concern) to be "substantially higher" than 35 $\mu g/m^3$. CASAC Letter III at 6 [JA___]. All EPA can muster as a response is that "[w]hile EPA agrees that the use of 24-hour and annual averages will result in *more* variability in visibility across urban areas, as the Staff Paper notes, any $PM_{2.5}$ secondary standard would result in *some* variability in protection in different locations." 2006 Final Rule at 61208 [JA___] (emphasis added). This is hardly the picture of an agency applying its technical expertise to provide a rational basis for its decisions.

EPA also fails to explain its rejection of the Staff Paper's conclusion that the shorter averaging period more reasonably accounts for the differences between eastern and western cities and the effect of humidity. *See* Staff Paper at 7-6 to 7-7 [JA___]. EPA acknowledges that a "sub-daily standard has strong technical merit" and that "the fine particle/visibility relationship is most consistent across regions for shorter averaging times during the daylight hours, when humidity tends to be the lowest." 2006 Final Rule at 61207-08 [JA___]. EPA again dismisses all of these, however, with the utterly irrelevant assertion that while "EPA also agrees that visibility impairment has the greatest impact on public welfare during the daylight hours, . . . daylight is not limited to a four or eight hour period." *Id.* at 61208 [JA___]. There is no further explanation of why the 24-hour averaging period is preferable or more reasonably connected to, or protective against, visibility impacts. There is no mention of confounding by humidity or how regional differences in humidity will result in different levels of protection in the eastern and western U.S. under a 24-hour standard. Again, EPA can point to no record basis for choosing a 24-hour average as a reasonable form for the secondary standard to address visibility impacts.

In its unprecedented rebuke of EPA's rulemaking, CASAC warned that "continuing to rely on primary standards to protect against all PM-related adverse environmental and welfare effects assures neglect, and will allow substantial continued degradation, of visual air quality over large areas of the country." CASAC Letter IV at 2 [JA___]. EPA instead suggests that any such shortcomings in the protection provided by the secondary standard may be addressed through either EPA's regional haze program designed to address visual air quality in Class I areas, or through local programs. 2006 Final Rule at 61208 [JA___]. Yet EPA provides no explanation of how or to what degree these programs will protect public welfare from adverse visibility impacts across the entire country, nor could it. The regional haze program addresses visibility impairment in only a small number of national parks and wilderness areas, comprising a tiny fraction of the nation. *See* 42 U.S.C. § 7472(a) (defining Class I areas).[11] The record demonstrates that the regional haze program is inadequate to provide protection in most areas given its extremely limited scope, *see, e.g.*, ALA Comments at 67-69 [JA___]. Moreover, EPA's reliance on local programs amounts to pure speculation, as the Agency fails to even identify where such programs exist, much less evaluate their effectiveness in protecting public welfare from adverse visibility impacts. Indeed, the only evidence in the record on such programs shows they are insufficient to achieve even local goals. *See, e.g.*, Criteria Document at 4-183 [JA___] (noting that despite Denver's local visibility program adopted in 1990, the Denver region still exceeds the local standard 50 to 80 times per year). Moreover, even if local programs did provide some protection in isolated communities, section 109(b)(2) requires EPA to establish

[11] In *American Trucking*, this Court held that EPA could rely on the regional haze program "to mitigate *some* of the adverse visibility effects caused by PM[2.5]." 283 F.3d at 375 (emphasis added). Nowhere did the Court suggest that the haze program, either alone or in combination with unidentified local programs, was *sufficient* to satisfy EPA's obligation to adopt secondary standards requisite to protect public welfare against any know or anticipated adverse effects.

the level of protection required nationally. EPA cannot rely on local areas or regional programs as substitutes for that baseline level of required national protection.

III. EPA'S REVOCATION OF THE ANNUAL PM_{10} STANDARD IS UNLAWFUL AND ARBITRARY

A. The Clean Air Act Precludes Revocation of the Annual PM_{10} NAAQS

Congress, in the 1990 Amendments to the Act, decided that more needed to be done to address the problems associated with particulate matter pollution and that it was no longer sufficient to rely on open-ended statutory directives for EPA to clean the air. As a result, Congress created a detailed strategy built around its codification of the standards existing at the time. EPA cannot now rewrite that strategy by revoking the annual PM_{10} standard altogether.

Congress was unusually explicit in incorporating and preserving the PM_{10} NAAQS in the 1990 Amendments of the Clean Air Act. Section 107(d)(4)(B) specifies that all "Group I" areas identified by EPA in its August 7, 1987 Federal Register notice are designated as non-attainment for PM_{10}. 42 U.S.C. § 7407(d)(4)(B)(i). In addition, any area, as of January 1, 1989, with air quality monitoring data showing a violation of the PM_{10} NAAQS as determined under EPA's 1987 "Interpretation of the National Ambient Air Quality Standards for Particulate Matter" (appendix K of 40 CFR part 50) must also be designated nonattainment by operation of law. *Id.* § 7407(d)(4)(B)(ii). These areas remain designated nonattainment until EPA is able to redesignate them to attainment under section 107(d)(3). *Id.* § 7407(d)(4)(B). The requirements for redesignation of a nonattainment area to attainment under section 107(d)(3) are similarly explicit. Among other things, EPA must determine that the area has attained the standard and that the improvement in air quality is the result of permanent and enforceable emission reductions. *Id.* § 7407(d)(3)(E). By building the statutory scheme on EPA's regulations, which included both 24-hour and annual averaging periods for the PM_{10} NAAQS, and then explicitly

dictating how these designations could be changed, Congress limited EPA's flexibility to revisit its past decisions and change the way areas demonstrate compliance with the PM_{10} NAAQS.

Subpart 4 of Clean Air Act title I, part D likewise builds upon the form of the PM_{10} NAAQS in place in 1990. Section 188(d), which governs how nonattainment areas may qualify for extensions of their attainment deadlines, requires that areas meet criteria under both the 24-hour and the annual standards for PM_{10}. 42 U.S.C. § 7513(d)(2) ("the Administrator may extend [the attainment deadline] if . . . the annual mean concentration for PM-10 in the area for such year is less than or equal to the standard level."). EPA's decision to revoke the annual standard would impermissibly render this requirement meaningless.

EPA asserts that:

> [T]he statutory implementation provisions . . . in Subpart 4 apply where there is a NAAQS in place that EPA has determined is necessary to protect public health. They do not preclude or limit EPA's authority under section 108 and 109 to revise or revoke a NAAQS that is no longer necessary to protect public health.

Responses to Comments at 141 [JA___]. EPA overstates its case. While the statute leaves room for EPA to revise the standards as appropriate to protect public health and welfare, Congress has, in fact, limited EPA's discretion in several important ways. First, Congress has determined for itself that particulate matter pollution is responsible for adverse public health and welfare impacts and, as a result, has required that particulate matter pollution be addressed. It is therefore, no longer an option for EPA to declare that particulate matter pollution is not a concern. Having concluded that particulate matter pollution must be controlled, only Congress can revisit that decision and remove the statutory obligations written into the Act. Second, as described above, Congress has concluded that the control strategy must include both a 24-hour and an annual standard. EPA may have discretion to revise these standards as appropriate to ensure they adequately address particulate matter pollution, but EPA cannot rewrite the Act to

eliminate one or the other of these standards. Third, Congress expressly directed that EPA regulate *PM_{10}* by mandating designation of PM_{10} nonattainment areas and submission of plans to meet both annual and 24-hour PM_{10} standards. *See* 42 U.S.C. §§ 7407(d)(4)(B)(ii) and 7513-7513b.

That Congress limited EPA's authority under sections 108 and 109 is consistent with Congress' frustration over the lack of progress to address criteria air pollution. Repeatedly, Congress included new statutory language as part of the 1990 Amendments that, in fact, did "preclude or limit EPA's authority." For EPA to argue the contrary – that sections 108 and 109, limit the plain language of the subsequently added language in Subpart 4 – violates the fairly basic canons of statutory construction that the later in time amendment shall be controlling, and that the more specific provisions control over the general. *See, e.g.*, *Eisenberg v. Corning*, 179 F.2d 275, 276 (D.C. Cir. 1950) ("It is settled . . . that if two statutes be in conflict the later will be given effect); *Clifford F. MacEvoy Co. v. U.S. ex rel. Calvin Tomkins Co.*, 322 U.S. 102, 107 (1944) (specific terms prevail over the general in the same statute). EPA cannot rely on pre-1990 authority to undo the intentional limits on that authority that Congress adopted with the 1990 Amendments.

EPA may not agree with Congress' decision to require compliance with both a 24-hour and an annual standard for PM_{10}, but that is not for EPA to question. "[A]n agency may not avoid the Congressional intent clearly expressed in the text simply by asserting that its preferred approach would be better policy." *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1089 (D.C. Cir. 1996). Congress believed the annual standards were necessary to control exposures to PM_{10}, and the provisions of Subpart 4 are consistent with Congress' desire to address those concerns.

B. Even if the Act Allowed EPA to Revoke the Annual PM_{10} Standard, EPA's Decision was Still Arbitrary and Capricious Because EPA Ignored the Protection Against Adverse Short-Term Exposures Provided by the Annual PM_{10} Standard.

EPA justifies revocation of the annual standard based on the lack of studies showing that long-term exposures cause adverse health impacts. 2006 Final Rule at 61198 [JA___]. EPA's narrow analysis, however, was arbitrary because EPA adopted the annual PM_{10} standard to protect against *both* long- and short-term exposures of concern. Both the proposal and final rulemaking associated with the 1997 NAAQS revision noted that "the current annual PM_{10} standard offers *substantial* protection against both long- and short-term effects of coarse fraction particles." 1996 Proposed Rule at 65661 [JA___] (emphasis added); *see also* 1997 Final Rule at 38677 [JA___]. In fact, in the proposal, EPA suggested that the annual standard might be the only standard necessary to deal with both long- and short-term effects, finding "analyses of the available air quality relationships show that [the 24-hour] standard might not add greatly to the protection afforded by the current PM_{10} annual standard." 1996 Proposed Rule at 65662 [JA___]. EPA nonetheless retained the 24-hour standard to provide "*additional* protection against potential effects of short-term exposures . . . ." *Id.* at 65661 [JA___] (emphasis added).

EPA now argues that the annual standard is unnecessary because the 24-hour standard is "controlling" (*i.e.*, "in virtually every area" compliance with the 24-hour standard leads to compliance with the annual standard but not the other way around). 2006 Final Rule at 61198 n.76 [JA___]. This, however, does not mean that the annual standard had no effect in shaping the short-term concentrations an area experiences. By driving areas to achieve an average daily concentration of no more than 50 $\mu g/m^3$, the annual standard not only limited the number of days that came close to but did not exceed the 24-hour standard (*e.g.*, the number of days with 24-hour

concentrations of 154[12] $\mu g/m^3$), but also the peak concentrations on those days that did exceed the 24-hour standard.

EPA includes no analysis of how revocation of the annual standard will effect the level of protection the NAAQS provide against health impacts associated with short-term exposures. EPA makes no claim that the evidence on short-term exposures justifies less protection. Yet there can be little dispute that the revocation of the annual standard reduces the margin of safety previously provided. EPA's decision to revoke the annual PM_{10} standard without even acknowledging the short-term protections provided by the standard is entirely arbitrary.

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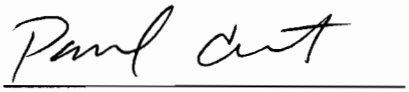
[12] EPA allows rounding to the nearest 10 $\mu g/m^3$. 40 CFR Part 50, App. K, Sec. 1.0(b) (2006).

CONCLUSION AND RELIEF REQUESTED

For all the foregoing reasons, Petitioners respectfully request that the Court vacate EPA's decision to revoke the annual PM_{10} standard, and remand that decision along with EPA's decisions on the primary and secondary $PM_{2.5}$ standards for prompt corrective action by the Agency.

DATED: October 2, 2007.



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CERTIFICATE OF COMPLIANCE WITH WORD LIMIT

I hereby certify that the foregoing brief is within the applicable word limit set in the Court's July, 31, 2007 order, in that it contains 9,861 words according to counsel's word processing system.

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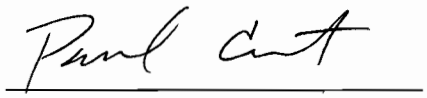

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CERTIFICATE OF SERVICE

I hereby certify that on October 2, 2007, the foregoing **OPENING BRIEF OF AMERICAN LUNG ASSOCIATION, ENVIRONMENTAL DEFENSE, AND NATIONAL PARKS CONSERVATION ASSOCIATION** was served by United States first-class mail, (or, where an email address is set forth, electronically pursuant to written consent obtained under Fed. R. App. P.25(c)(1)(D)), upon the following:

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