ORAL ARGUMENT NOT YET SCHEDULED

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

No. 12-1238

CENTER FOR BIOLOGICAL DIVERSITY, ET AL.,

PETITIONERS,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL.,

RESPONDENTS.

ON PETITION FOR REVIEW OF FINAL AGENCY ACTION OF THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BRIEF FOR RESPONDENTS

IGNACIA S. MORENO
ASSISTANT ATTORNEY GENERAL
ENVIRONMENT AND NATURAL
RESOURCES DIVISION

DANIEL R. DERTKE
ENVIRONMENTAL DEFENSE SECTION
U.S. DEPARTMENT OF JUSTICE
P.O. BOX 7611
WASHINGTON, D.C. 20044
TEL: (202) 514-0994
FAX: (202) 514-8865

FEBRUARY 19, 2013

RESPONDENT'S CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

A. Parties and *Amici*

All parties appearing in this Court are accurately identified in the Brief of Petitioners, with the exception of Lisa P. Jackson, Administrator, EPA; Bob Perciasepe is currently the Acting Administrator.

B. Rulings Under Review

The agency action under review is EPA's final rule entitled *Secondary National Ambient Air Quality Standards for Oxides of Nitrogen and Sulfur*, published in the Federal Register at 77 Fed. Reg. 20,218 (Apr. 3, 2012).

C. Related Cases

This case was not previously before this Court or any other court.

Respectfully submitted,

/s/ Daniel R. Dertke
DANIEL R. DERTKE, Attorney
Environmental Defense Section
U.S. Department of Justice

February 19, 2013

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

* Authorities upon which we chiefly rely are marked with asterisks

STATUTES

REGULATIONS

FEDERAL REGISTER

GLOSSARY

ANC	acid neutralizing capacity
CAA	Clean Air Act
CASAC	Clean Air Scientific Advisory Committee
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NOx	the sum of nitric oxide (NO) and nitrogen dioxide (NO_2)
NOy	total reactive oxidized nitrogen; the complete set of oxidized nitrogen compounds
PA	Policy Assessment
Pet. Br.	Brief of Petitioners
ppm	parts per million
SO_2	sulfur dioxide
SOx	the sum of gaseous sulfur dioxide (SO_2) and particulate sulfate (SO_4); virtually all of the oxidized sulfur mass in the atmosphere
ueq/L	microequivalents per liter

JURISDICTIONAL STATEMENT

On April 3, 2012, acting pursuant to the Clean Air Act ("CAA" or "the Act"), EPA published a final rule declining to establish new secondary National Ambient Air Quality Standards ("NAAQS") to address acidification and nutrient enrichment in aquatic and terrestrial ecosystems caused by the deposition of oxides of nitrogen and sulfur. In the final rule EPA also decided to establish a field pilot program to enhance EPA's understanding of the degree of protectiveness that a new standard to address the acidification of aquatic ecosystems would afford. 77 Fed. Reg. 20,218 (Apr. 3, 2012) (JAxxxx). Petitioners Center for Biological Diversity, Clean Air Council, and National Parks Conservation Association ("Petitioners") timely filed this petition for judicial review. The Court has jurisdiction under 42 U.S.C. § 7607(b). However, as demonstrated in Argument I, below, Petitioners lack standing to challenge EPA's decision not to establish a new secondary NAAQS to address nutrient enrichment in aquatic and terrestrial ecosystems.

STATUTES AND REGULATIONS

All applicable statutes and regulations are contained in the Brief for Petitioners ("Pet. Br.").

ISSUES PRESENTED

1. Whether Petitioners have standing to challenge EPA's decision not to revise the secondary NAAQS to address nutrient enrichment in terrestrial or aquatic ecosystems, where Petitioners have not alleged any harm to any of their members from nutrient enrichment.

2. Whether the Clean Air Act requires EPA to revise the secondary NAAQS even if the scientific uncertainties are so substantial that the Administrator cannot make a reasoned determination whether or not the revised standard would provide the requisite degree of protection.

3. Whether the administrative record supports and EPA explained the basis for its decision that EPA cannot make a reasoned determination whether or not a revised standard would provide the requisite degree of protection.

STATEMENT OF THE CASE

I. NATURE OF THE CASE

This case involves "by far the most complex form of a NAAQS standard" that EPA has ever considered. 77 Fed. Reg. at 20,262/1 (JAxxxx). It concerns an "innovative and unique" attempt to link ambient concentrations of two pollutants (oxides of nitrogen and of sulfur), their deposition through mechanisms such as acid rain, and the resulting acidification of aquatic ecosystems. *Id*. at 20,260/3 (JAxxxx). Unlike most other NAAQS, it must take into account geographic

variability and the specific characteristics of separate ecosystems throughout the nation.

The Aquatic Acidification Index ("Index") seeks to provide a degree of protection from these effects that is uniform throughout the country, by allowing for varying concentrations of pollutants depending on atmospheric conditions and other ecological variables. It depends on the ability of ecological and atmospheric models to generate values that are representative throughout an entire ecosystem. But, like any model, the Index may be scientifically sound in theory or general concept yet, without the appropriate inputs, too uncertain to apply in practice.

Although EPA has devoted enormous amounts of time and resources to the development of the Index, EPA is not yet in a position to determine with a sufficient degree of certainty some of these key inputs. Without greater scientific certainty, the Administrator judged that she could not make a reasoned determination that a NAAQS based on the Index would be protective enough, but not too protective, against the effects on welfare of acidifying deposition of oxides of nitrogen and sulfur. The Administrator's decision should be upheld, and the petition for judicial review should be dismissed.

II. STATUTORY BACKGROUND

The Clean Air Act, 42 U.S.C. §§ 7401-7671q, is intended to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare." *Id.* § 7401(b)(1). NAAQS are a central element of the Act.

The NAAQS process begins with the development of "air quality criteria," which must "accurately reflect the latest scientific knowledge" regarding "all identifiable effects on public health or welfare" that may result from a pollutant's presence in the ambient air. *Id.* § 7408(a)(2). Section 7408 requires EPA to establish air quality criteria for certain pollutants, and Section 7409 then requires EPA to establish NAAQS for these pollutants. *Id*. §§ 7408(a), 7409(a). Based on the air quality criteria, EPA promulgates "primary" and "secondary" NAAQS to protect against a pollutant's effects on public health and welfare. *Id*. § 7409(b). "Primary" standards must be set at levels that, "in the judgment of the Administrator," are requisite to protect public health with "an adequate margin of safety." *Id.* § 7409(b)(1). The "secondary" standards must

> specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator . . . is 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 term "requisite," in reference to both primary and secondary standards, means "not lower or higher than necessary." *Whitman v. Am. Trucking*

Ass'ns, 531 U.S. 457, 476 (2001). The Act defines "effects on welfare" broadly to include effects on soils, water, vegetation, and personal comfort and well-being, among other things. *Id*. § 7602(h). The NAAQS establish permissible concentrations of these pollutants in the "ambient," or outside, air. States must then establish State Implementation Plans ("SIPs") to attain and maintain the NAAQS within their borders. *Id.* § 7410.

A NAAQS has four components: an indicator, which defines what compound or compounds in the ambient air will be measured, such as nitrogen dioxide (NO_2), or particulate matter of 2.5 microns or less (PM2.5); a level, which specifies the maximum acceptable concentration of the indicator in the ambient air; an averaging time, which specifies the span of time across which the amount of the indicator will be averaged (such as annually, or daily, or 3 hours); and a form, which defines how compliance with the level will be determined within the averaging time. *See generally Am. Farm Bureau Fed'n v. EPA*, 559 F.3d 512, 516 (D.C. Cir. 2009). For example, to meet the current secondary NAAQS for sulfur oxides, the standard specifies that the average concentration over every three-hour period (*i.e.*, the averaging time) of sulfur dioxide (SO_2, the indicator) in the ambient air cannot exceed 0.5 parts per million (the level) more than once per year (the form). *See* 40 C.F.R. § 50.5.

Primary and secondary NAAQS, and air quality criteria, must be reviewed at five-year intervals, at which time the Administrator

> shall make such revisions in such criteria and standards and promulgate such new standards as may be appropriate in accordance with section 7408 of this title and subsection (b) of this section.

42 U.S.C. § 7409(d)(1). In its review, EPA must consider, and explain any significant departure from, the recommendations of the Clean Air Scientific Advisory Committee ("CASAC," or the "Committee"), an independent scientific review committee established to advise the Administrator on air quality criteria and NAAQS. *Id.* §§ 7409(d)(2)(B), 7607(d)(3). When a new NAAQS is issued, or an existing NAAQS is revised, EPA is required to designate as "nonattainment" any area that does not meet the new or revised standard. 42 U.S.C. § 7407(d)(1). Such areas are subject to "additional restrictions over and above the implementation requirements imposed generally by [the Clean Air Act]." *Whitman*, 531 U.S. at 476.

III. REGULATORY BACKGROUND

A. EPA's Regulation of Oxides of Sulfur

EPA first set secondary NAAQS for sulfur oxides in 1971, establishing both a short-term 0.5 ppm 3-hour standard and a 0.02 ppm annual standard. 36 Fed. Reg. 8186, 8187/2 (Apr. 30, 1971) (JAxxxx). Both of these standards addressed the direct effects of SO_2 on vegetation. EPA revoked the annual standard in 1973,

after that standard was remanded by this Court for further explanation of its basis. *See Kennecott Copper Corp. v. EPA*, 462 F.2d 846 (D.C. Cir. 1972). In response to comments that the annual standard should be retained because it provides some protection against, among other things, the occurrence of acid rain, EPA explained that although the formation and effects of acid rain were under investigation, the "data needed for standard-setting are not now available." 38 Fed. Reg. 25,678, 25,679/2 (Sept. 14, 1973) (JAxxxx). EPA further noted that the "relationships between the specific ambient air concentrations of sulfur dioxide, either alone or in combination with other environmental factors, and the adverse effects caused by those concentrations must be demonstrable or predictable prior to establishing any [NAAQS]." *Id.* at 25,679/2-3.

In 1980, the Clean Air Scientific Advisory Committee recommended that prior to attempting to control acid deposition through a NAAQS, EPA prepare a separate, comprehensive document on that issue. The Committee noted that "acid deposition is a topic of extreme scientific complexity" due to the difficulty in quantifying the relationship among the emissions of oxides of sulfur (and nitrogen), the formation of deposition products, and the effects on terrestrial and aquatic ecosystems. 77 Fed. Reg. at 20,220/1 (JAxxxx).

EPA produced assessments of acidic deposition in 1984 and 1985, and in 1993, during its most recent prior review of the secondary NAAQS for sulfur

oxides, EPA determined that although the "acid deposition phenomenon" is "[a]mong the major welfare effects associated with SO_2 emissions and their transformation products," revision of the secondary NAAQS for SO_2 to address acid deposition was not appropriate at that time. 58 Fed. Reg. 21,351, 21,355/2, 21,358/1 (Apr. 21, 1993) (JAxxxx). EPA reasoned that the better course was to develop more information and see how successful the Acid Rain program enacted in 1990 as Title IV of the Act would be in addressing the problem of acidifying deposition of oxides of sulfur. *Id*. at 21,357/3 (JAxxxx). EPA's determination that revision of the secondary standard was not appropriate was not challenged.

B. EPA's Regulation of Oxides of Nitrogen

EPA issued a secondary NAAQS for NO_2 in 1971, set at 0.053 parts per million NO_2 as an annual average, also directed solely to direct effects on vegetation. 36 Fed. Reg. at 8,187/3 (JAxxxx). EPA retained this standard in 1985, 50 Fed. Reg. 25,532 (June 19, 1985), and in 1987 EPA began its most recent prior review of the secondary NAAQS for NO_2. EPA released a draft criteria document in 1991, which EPA finalized in 1993 after receiving comments from the Clean Air Scientific Advisory Committee. 77 Fed. Reg. at 20,219/2-3 (JAxxxx). In 1996, EPA determined that revision of the secondary NAAQS for oxides of nitrogen was not appropriate at that time. EPA noted the scientific complexity of nitrogen deposition, and the significant uncertainties regarding the relationship between

atmospheric deposition and the appearance of nitrogen in surface water. 61 Fed. Reg. 52,852, 52,854/2 (Oct. 8, 1996) (JAxxxx). EPA therefore could not determine what levels of airborne reductions would be necessary. *Id*. at 52,854/3. Neither that decision, nor EPA's 1985 decision to retain the secondary standard, was challenged.

C. EPA's Current Rulemaking

1. Development of the Aquatic Acidification Index

EPA initiated the current review of the secondary NAAQS for oxides of nitrogen and for oxides of sulfur in December 2005, with a call for information to develop a revised Integrated Science Assessment, which is a comprehensive review, synthesis, and evaluation of the most relevant science. 77 Fed. Reg. at 20,221/2 (JAxxxx). EPA issued the final Integrated Science Assessment in December 2008, and a Risk and Exposure Assessment in September 2009. *Id*. EPA then prepared a Policy Assessment, which is a "bridge" between the relevant scientific and technical information and the judgments required of the Administrator in determining whether, and if so, how, it is appropriate to revise the secondary NAAQS for oxides of nitrogen and sulfur. Policy Assessment for the Review of the Secondary National Ambient Air Quality Standards for Oxides of Nitrogen and Oxides of Sulfur (Feb. 2011) ("Policy Assessment") at ES-1 (JAxxxx). EPA finalized the Policy Assessment in February 2011, and received

the Clean Air Scientific Advisory Committee's comments on the final version in May 2011. 77 Fed. Reg. at 20,221/2 (JAxxxx).

In the Policy Assessment, EPA developed and described the Aquatic Acidification Index as the potential form of a secondary NAAQS to address the acidifying impacts of the deposition of oxides of nitrogen and sulfur on aquatic ecosystems. Policy Assessment at ES-7 to ES-9 (JAxxxx). The Index is designed to link the concentrations of most oxides of nitrogen (NOy)[1] and sulfur (SOx)[2] in the ambient air, based on the propensity of those pollutants to be deposited on water, or on land and then reach water, with the ecological factors that govern acid sensitivity to such deposition in different aquatic habitats. *Id*.; *see also* 77 Fed. Reg. at 20,244/1 (JAxxxx).

The Index relies on the concept of acid neutralizing capacity ("ANC"), which is an ecological indicator of the health of acid-sensitive aquatic ecosystems. Policy Assessment at ES-2, ES-6 (JAxxxx, xxxx). At high levels of acid neutralizing capacity, aquatic biota are generally not harmed, but at lower levels the health and diversity of fish populations and other biota decline. *Id*. at ES-3

---

[1] NOy represents total reactive oxidized nitrogen, *i.e.*, the complete set of oxidized nitrogen compounds, in contrast to NOx which represents the sum of nitric oxide (NO) and nitrogen dioxide (NO_2).

[2] SOx is the sum of gaseous sulfur dioxide (SO_2) and particulate sulfate (SO_4), and represents virtually all of the oxidized sulfur mass in the atmosphere.

(JAxxxx). The appropriate degree of protection for aquatic life is a policy judgment, and the Index is a mechanism to translate this policy judgment into allowable ambient air concentrations of NOy and SOx that would achieve that degree of protection. The policy judgment regarding the appropriate degree of protection would be specified, in part, in terms of a national target level of acid neutralizing capacity. 77 Fed. Reg. at 20,242/3 to 243-1; 20,257/2-3 (JAxxxx-xxxx; xxxx); *see also* Policy Assessment at ES-9; *id*. at 1-11, 1-14 (JAxxxx, xxxx, xxxx).

Because different parts of the country have different sensitivities to acid deposition and the resulting acidification, the Index would be applied on an ecoregion basis, with each ecoregion representing a geographic area with similar characteristics relevant to acid neutralizing capacity. Policy Assessment at ES-7 to ES-8 (JAxxxx-xxxx). Based on the available information, EPA considered an approach that would divide the United States into 84 ecoregions. *Id*.

The degree of protection from an Index based standard would also be based on the percentage of waterbodies in an ecoregion that are intended to meet the national target level of acid neutralizing capacity. Thus, one possible degree of protection that the Administrator might determine is requisite could be a national

target acid neutralizing capacity level of 75 ueq/L,[3] with that degree of protectiveness afforded to 90% of the waterbodies in each ecoregion. 77 Fed. Reg. at 20,247/3, 20,249/1 (JAxxxx, xxxx).

Although the Index can mathematically be expressed in a relatively short equation, Index = F1 – F2 – F3[NOy] – F4[SOx], each term in this equation necessarily takes into account numerous elements, and the apparent simplicity of this equation belies the complicated relationship between ambient concentrations of NOy and SOx and these pollutants' acidifying effect on aquatic habitats. *See, e.g.*, Individual comments of Dr. Rudolph Husar, attached to Clean Air Scientific Advisory Committee Comments on the Policy Assessment for the Review of the Secondary National Ambient Air Quality Standards for Oxides of Nitrogen and Oxides of Sulfur (Feb. 2011) ("Committee Comments") at 34 ("The equation may be simple but the complications are embedded in the factors F1 to F4. Also, these factors rely heavily on model estimates, so these 'simple' terms in [the Index] arise from very complicated calculations and they are also the carriers of much of the uncertainty in [the Index's] determination.") (JAxxxx).

For example, the F1 term represents the ability of the aquatic ecosystems in an ecoregion to neutralize acid deposition. For each ecoregion, EPA would

[3] Microequivalent units per liter, which is a means of comparing amounts of a substance by reference to their reactivity.

determine a representative "critical load" of acidifying deposition. The critical load for any one waterbody reflects the amount of deposition that the waterbody can receive and still sustain, for example, the national target level of acid neutralizing capacity for that waterbody. The representative critical load for an *ecoregion* would be based on a calculation of the critical loads for each waterbody within the ecoregion, for which sufficient data are available, and a specified percentile of this distribution of individual critical loads. If this representative critical load were to occur across the ecoregion, the goal would be that the target percentage of waterbodies within the ecoregion would achieve the national target level of acid neutralizing capacity or better. 77 Fed. Reg. at 20,247/2-3 (JAxxxx).

The ecoregion critical load varies by ecoregion, as it depends on geologic and other characteristics relevant to determining acid sensitivity, such as the runoff rate that is representative for the ecoregion. *Id*. at 20,247/2. In order to establish the value for F1, EPA must also consider a host of other ecological characteristics, such as topography and geology, which can vary widely from ecoregion to ecoregion and, in some cases, from waterbody to waterbody within an ecoregion.

While the F1 factor relates to the ability of an ecoregion to neutralize acidifying deposition, the factors F2-F4 relate to the amount of acidifying deposition that will occur based on reduced forms of nitrogen compounds in the ambient air, such as ammonia (the F2 factor), and oxdized forms of nitrogen and

sulfur compounds in the ambient air (the F3 and F4 factors). Each of these F factors are based on modeling, and face many uncertainties, as discussed below.

The target level of acid neutralizing capacity would be the same throughout the nation. The target percentage of waterbodies would be the same across the nation for acid-sensitive ecoregions, while the target percentage of waterbodies for non acid-sensitive regions might be somewhat less, to avoid overprotection in less sensitive areas. 77 Fed. Reg. at 20,247/3-248/1 (JAxxxx-xxxx). Achieving this national uniformity in targets requires that each of the F factors be established separately for each ecoregion. These ecoregion-specific factors would be based on modeling designed to characterize the effects of the many relevant physical and other characteristics of the ecoregion and its waterbodies, the deposition of nitrogen from its reduced forms in the ambient air, and the deposition of nitrogen and sulfur from the oxides of nitrogen and sulfur in the ambient air. In concept, the Index would therefore establish, for each of the 84 ecoregions, the ambient levels of oxides of nitrogen and oxides of sulfur that will result in achieving the national level of acid neutralizing capacity for the desired percentile of waterbodies.

The Index, however, does not attempt to address the acidification of terrestrial ecosystems, nor does it address nutrient enrichment in terrestrial or aquatic ecosystems. The Clean Air Scientific Advisory Committee supported

EPA's decision to focus on aquatic acidification as opposed to terrestrial acidification or nutrient enrichment. Policy Assessment at 1-10 to 1-11 (JAxxxx-xxxx). The Committee expressed general support for the conceptual framework of an Index-based standard, based on the underlying scientific information, and for the conclusions in the Policy Assessment with regard to the indicators, averaging time, form and level of the standard that are appropriate for the Agency to consider in reaching decisions on the review of the secondary NAAQS. 77 Fed. Reg. at 20,250-51 (JAxxxx-xxxx). The Committee also noted various caveats and concerns, including the importance of continuing to evaluate the performance of the models to account for model uncertainties and identifying potential biases in critical load calculations and in the regional representativeness of available water chemistry data. *Id*. at 20,251/1 (JAxxxx). These potential biases led the Committee to recommend that "some attention be given to our residual concern that the available data may reflect the more sensitive water bodies and thus, the selection of the percentiles of waterbodies to be protected could be conservatively biased." *Id*.

2. EPA's proposal.

On July 12, 2011, in satisfaction of one of the deadlines in a consent decree with Center for Biological Diversity and others, EPA signed its proposed decision. 76 Fed. Reg. 46,084 (Aug. 1, 2011) (JAxxxx). In the proposal, EPA determined

that the current secondary standards, which as noted above were developed to address direct effects on vegetation, are not ecologically relevant to deposition-related effects. *Id*. at 46,111/1 (JAxxxx). EPA also determined that current levels of oxides of sulfur and nitrogen are sufficient to cause acidification of both aquatic and terrestrial ecosystems and nutrient enrichment of terrestrial ecosystems, and contribute to nutrient enrichment in ways that could be considered adverse in some aquatic ecosystems. EPA also determined that current secondary standards do not provide adequate protection from these effects. *Id*. Because of the quantity and quality of the available information associated with aquatic acidification as compared to the information available for other deposition-related effects, EPA focused on developing a new multi-pollutant standard to address aquatic acidification. *Id*. EPA therefore considered whether a standard based on the Index would be appropriate to address the effect of acidifying deposition in aquatic ecosystems. *Id*.

EPA invited comment on all elements of the Index, on a range of potential national target levels of acid neutralizing capacity, and on a range of percentiles of waterbodies. *Id*. at 46,128/1-2 (JAxxxx). EPA proposed F factors for each of the 84 ecoregions, and discussed the sources and types of uncertainty associated with the development of the Index. *Id*. at 46,130-132 (JAxxxx-xxxx). However, EPA proposed not to adopt a standard based on the Index because the Administrator

could not determine whether key elements of the Index are representative of conditions throughout a given ecoregion, and thus whether compliance with such a standard would ensure a level of air quality requisite to protect the public welfare from aquatic acidification. *Id*. at 46,134/3-135/1 (JAxxxx-xxxx). Instead, EPA proposed to reduce the 1971 standards to the levels of the 1-hour primary standards for NO_2 and SO_2, set in 2010, which are 100 parts per billion NO_2 and 75 parts per billion SO_2. *Id*. at 46,135/2 (JAxxxx). EPA opined that this would "directionally benefit" the environment. *Id*. EPA also proposed to establish a field pilot program, to address several of the uncertainties regarding the Index and to better understand the degree of protectiveness that an Index-based standard would likely provide. *Id*. at 46,135/3-136/1 (JAxxxx-xxxx).

Industry groups supported EPA's decision not to propose an Index-based revision of the secondary NAAQS; some argued that further information and analysis is needed, while others criticized the entire Index-based approach. 77 Fed. Reg. at 20,253/1 (JAxxxx). Many commenters noted that air deposition modeling, critical load modeling, and the lack of water quality and watershed data preclude EPA from setting a standard at this time. *Id*. Other commenters, including several environmental groups, argued that the underlying scientific evidence supports the Index, and that the Index adequately accounts for the uncertainties in, and limitations of, that evidence. *Id*. at 20,253/2. Some commenters also argued that

despite the uncertainties and incomplete data, EPA must err in favor of stronger protection. *Id*. at 20,253/3. Some states, such as New York, supported the Index, while others, such as Pennsylvania and North Carolina, felt that additional information should be gathered before proposing a revised standard. *Id*. at 20,253/3-254/1 (JAxxxx-xxxx). Almost all commenters criticized EPA's proposal to set 1-hour NO_2 and SO_2 secondary standards identical to the primary standards. *Id*. at 20,258/3-259/3 (JAxxxx-xxxx).

3. EPA's final action.

After reiterating its conclusion that the current secondary standards do not provide adequate protection from the acidification of aquatic and terrestrial ecosystems, and nutrient enrichment in terrestrial ecosystems, EPA decided that it was not appropriate under section 7409(b) to set any new secondary standards at this time. 77 Fed. Reg. at 20,255/3, *see also id.* at 20,263/3 (JAxxxx, xxxx). As in the proposal, EPA focused on the potential for using the Index to establish a secondary standard to address acidifying deposition, not nutrient enrichment, and to address acidification in aquatic rather than terrestrial ecosystems. *Id*. at 20,222/2-3; *see also id.* at 20,242/2 (JAxxxx, xxxx). EPA recognized the "strong scientific foundation" for the Index, *id*. at 20,261/1 (JAxxxx), but noted significant uncertainties and complexities remain, in particular regarding the quantification of the F factors "and their representativeness at an ecoregion scale." *Id*. The

uncertainties involve, among other things, insufficient data "to characterize the representativeness of the available data at an ecoregion scale," which the Clean Air Scientific Advisory Committee and others noted as a particular concern. *Id*. EPA needs to have a sufficient degree of confidence that the F factors are representative for each ecoregion. For example, the factor F2 represents for the ecoregion the deposition of reduced nitrogen, however there is high uncertainty in developing this factor based on lack of field measurements and inherent complexity in modeling source emissions and dry deposition. 77 Fed. Reg. at 20,249/3 (JAxxxx); *see also* 76 Fed. Reg. at 46,131/2 (field measurements of reduced nitrogen have been "extremely limited") (JAxxxx). EPA also noted the data gaps in water quality and other factors relevant to developing representative F1 factors. 76 Fed. Reg. at 46,130/2-3 (preindustrial conditions, used in developing F1, are by definition not observable); *id*. at 46,131 (disparity in water quality data across the country) (JAxxxx, xxxx). EPA needs to have a sufficient degree of certainty that it has representative F factor values for the entire ecosystem, otherwise the Index may be far too restrictive, or not restrictive enough to provide the desired degree of protection against acidifying effects from deposition of oxides of nitrogen and sulfur.

EPA considered whether these uncertainties could be addressed by selecting either a more or less protective national target level of acid neutralizing capacity,

or a higher or lower national percentile of waterbodies. 77 Fed. Reg. at 20,262/3 (JAxxxx). EPA rejected this approach because it could not reasonably ascertain either the direction or the magnitude of the change from the national target level that these uncertainties cause. *Id.* *See also* Policy Assessment at 7-70 to 7-75 (Table 7-3, describing for the various elements used to develop the F factors the level of uncertainty, the impact of the uncertainty, and whether the uncertainty likely biases the Index towards less protection, more protection, or in both directions) (JAxxxx-xxxx). Because of EPA's current level of knowledge of the representativeness of the F factors developed for the 84 ecoregions, EPA could not reach "a reasoned understanding of the degree of protectiveness that would be afforded to various ecoregions across the country by a new standard defined in terms of a specific nationwide target [acid neutralizing capacity] level and a specific percentile of water bodies for acid-sensitive ecoregions." 77 Fed. Reg. at 20,255 (JAxxxx). Because EPA could not determine that a revised standard would be in accordance with section 7409(b), EPA concluded that it would not be appropriate under section 7409(d) to revise the secondary NAAQS. *Id*. at 20,263/3 (JAxxxx).

EPA also rejected the proposed option of adopting a secondary standard at the level of the primary standard, *id*., but did decide to implement the field pilot program. *Id*. at 20,264 (JAxxxx).

Petitioners timely filed this petition for judicial review on June 1, 2012.

SUMMARY OF ARGUMENT

Petitioners challenge EPA's decision not to revise the secondary NAAQS for oxides of nitrogen and sulfur, to address the public welfare effects of acidification and nutrient enrichment in both aquatic and terrestrial ecosystems. Petitioners lack standing regarding nutrient enrichment, for failure to offer any evidence that any of their members are injured by this effect. Even if Petitioners had standing, the Clean Air Act does not compel EPA to revise the secondary NAAQS where, as here, EPA could not make a reasoned decision that such a revision would be in accordance with the statute. Furthermore, EPA adequately explained, and the record supports, EPA's conclusion that the uncertainties surrounding a potential revised standard to address aquatic acidification are so substantial that such a reasoned decision could not be made. The uncertainties regarding the other public welfare effects are even greater, and Petitioners do not seriously contend that the state of the science is sufficient for EPA to revise the NAAQS to address those effects.

The Clean Air Act requires EPA to revise secondary NAAQS "as may be appropriate in accordance with" section 7409(b), which in turn requires secondary NAAQS to be set at a level of air quality judged by EPA to be requisite to protect public welfare. 42 U.S.C. §§ 7409(d), (b)(2). If uncertainties regarding the

potential revised standards are judged by the Administrator to be so substantial that she cannot make a reasoned decision that the revision would be in accordance with section 7409(b)(2) – *i.e.*, that the revised standard would provide the requisite degree of protection, then it is not appropriate for the Administrator to revise the NAAQS. Petitioners' contrary argument, that EPA must revise the standard any time EPA finds an existing NAAQS to be inadequate, ignores the affirmative requirement in section 7409(b)(2) and would place EPA in the untenable position of being required to establish a standard that EPA cannot determine complies with the statute.

Petitioners would also create an independent duty to *determine* the requisite degree of protection, as a preliminary and independent step towards compliance with section 7409(b)(2)'s duty to specify an air quality level that *achieves* the requisite degree of protection. But there is no basis in the statute for two separate duties, and no need for EPA to determine the requisite degree of protection in isolation. It is only appropriate for EPA to take action if EPA can determine that a new standard, *i.e.*, an air quality level, will achieve a degree of protection that is "requisite."

EPA did not base its decision on the types of routine scientific uncertainties that underlie most models and predictions. Rather, EPA cannot make the necessary conclusion that the critical load calculation, which addresses the amount

of acidifying deposition a waterbody can withstand, is representative of all waterbodies within a particular ecoregion, for all ecoregions across the country. Nor can EPA adequately evaluate the models that address the deposition of reduced nitrogen and the oxides of nitrogen and sulfur. These are not the types of uncertainties that can be addressed through conservative assumptions or margins of error. Instead, they go directly to whether EPA can make a reasoned determination that a standard will provide the requisite degree of protection.

The record supports EPA's judgment that there is presently no reasoned way to determine whether a revised standard would be stringent enough, or too stringent, to achieve any intended degree of protection. Without the ability to make that determination, EPA cannot fulfill the statutory mandate in section 7409(b)(2), and EPA's decision that it is not appropriate to revise the secondary NAAQS should be upheld.

In the alternative, if the Court disagrees and remands EPA's decision, the Court should decline Petitioners' request to set a deadline for EPA to act. Instead, the Court should presume that EPA will continue in good faith to evaluate revising the NAAQS in accordance with section 7409(b)(2) and this Court's opinion.

STANDARD OF REVIEW

Under Clean Air Act section 307(d)(9), the Court may reverse EPA's action if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance

with law," or "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right." 42 U.S.C. § 7607(d)(9)(A), (C). This standard is narrow, and a court is not to substitute its judgment for the agency's. *Bluewater Network v. EPA*, 370 F.3d 1, 11 (D.C. Cir. 2004). Where EPA has considered the relevant factors and articulated a rational connection between the facts found and the choices made, its regulatory choices must be upheld. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *see also Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1158 (D.C. Cir. 1980) ("[W]here there is evidence in the record which supports [the Administrator's] judgments, this court is not at liberty to substitute its judgment for the Administrator's."). It is not the court's "function to resolve disagreement among the experts or to judge the merits of competing expert views." *Lead Indus. Ass'n*, 647 F.2d at 1160. "That the evidence in the record may also support other conclusions, even those that are inconsistent with the [EPA] Administrator's, does not prevent [the court] from concluding that [her] decisions were rational and supported by the record." *Id.* (citations omitted). *See also American Trucking Ass'ns v. EPA*, 283 F.3d 355, 362 (D.C. Cir. 2002) (on the merits, courts presume the validity of agency actions and face only the limited task of ascertaining that the choices made by the Administrator were reasonable and supported by the record; that the evidence may support other conclusions, even

those inconsistent with the Administrator's, does not mean her decision was arbitrary).

Although a court must apply the language of the statute where it reflects "the unambiguously expressed intent of Congress," if the statute is "silent or ambiguous with respect to the specific issue," the court must defer to the agency's interpretation so long as it is "based on a permissible construction of the statute." *Chevron U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837, 842-43 (1984).

ARGUMENT

I. PETITIONERS LACK STANDING TO CHALLENGE EPA'S DECISION NOT TO ESTABLISH A NEW SECONDARY NAAQS TO ADDRESS NUTRIENT ENRICHMENT IN AQUATIC AND TERRESTRIAL ECOSYSTEMS.

Petitioners have the burden of establishing standing, *Sierra Club v. EPA*, 292 F.3d 895, 899 (D.C. Cir. 2002), and must do so for each of their claims. *Davis v. Fed. Elections Comm.*, 554 U.S. 724, 733-34 (2008). *See also* D.C. Cir. Rule 28(a)(7). The constitutionally minimal requirements for standing are an injury-in-fact, causation, and redressability. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992). Petitioners claim they are injured by both acidification and nutrient enrichment, in both aquatic and terrestrial ecosystems, caused by the deposition of nitrogen and sulfur compounds. Pet. Br. at 24.

However, none of Petitioners' declarations alleges that any member of any of the petitioning associations is harmed by nutrient enrichment, in either aquatic or terrestrial ecosystems. All but one of Petitioners' declarations are focused explicitly and solely on acid deposition, sometimes referred to as acid rain. *See, e.g.*, Decl. of John Davis ¶¶ 5, 10, 15 (Pet. Br. at DEC3, 6, 8); Decl. of Gregory Gorman ¶¶ 6, 7 (Pet. Br. at DEC10); Decl. of Mollie Matteson ¶¶ 4, 5, 9, 13 (Pet. Br. at DEC13, 14, 16, 18); Decl. of Elizabeth Norcross ¶¶ 4, 8, 9 (Pet. Br. at DEC 21-22). None of Petitioners' declarations mentions nutrient enrichment at all. Petitioners therefore lack standing to challenge EPA's decision not to revise the secondary NAAQS to address nutrient enrichment in either aquatic or terrestrial ecosystems.

II. THE CLEAN AIR ACT DOES NOT REQUIRE EPA TO REVISE A NAAQS WHERE EPA CANNOT MAKE A REASONED DETERMINATION WHETHER THE REVISED STANDARD WOULD ATTAIN AND MAINTAIN THE REQUISITE DEGREE OF PROTECTION.

Under section 7409(d)(1), EPA must revise secondary NAAQS "as may be appropriate in accordance with" section 7409(b). 42 U.S.C. § 7409(d)(1). Section 7409(b)(2) requires secondary NAAQS to be a level of air quality judged by the Administrator as requisite to protect public welfare, so a revision to a NAAQS is only appropriate if EPA can judge that the revised standard provides the requisite degree of protection. If uncertainties regarding the potential revised standards are

judged by the Administrator to be so substantial that she cannot make a reasoned decision that the revision would be in accordance with section 7409(b)(2), then it is not appropriate for the Administrator to revise the NAAQS.

A. The Clean Air Act Only Requires EPA to Revise a NAAQS "As May Be Appropriate In Accordance With" Section 7409(b).

Petitioners' argument is that whenever EPA determines that an existing secondary NAAQS is no longer requisite to protect against a particular adverse impact on the public welfare, EPA must revise the secondary standard. Pet. Br. at 26. However, EPA's obligation is to revise a NAAQS "as may be appropriate in accordance with" section 7409(b). 42 U.S.C. § 7409(d)(1). Thus, a revision is only "appropriate" when it is in accordance with section 7409(b), which requires a reasoned judgment by EPA that the revised standard would provide the requisite degree of protection. *See* 42 U.S.C. § 7409(b)(2) (standards must "specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator . . . is 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"). If, as here, EPA cannot make that reasoned determination, then EPA is not required to revise the NAAQS.

This interpretation of section 7409(d)(1) is consistent with this Court's precedents regarding EPA's decision to revise a NAAQS. For example, in

American Farm Bureau Federation, the Court addressed a case where EPA revised a secondary standard, but failed to determine the requisite degree of protection that the standard needed to achieve. The Court held that when EPA revises a standard EPA must determine the degree of protection that is requisite to protect public welfare. 559 F.3d at 530. Revising the standard without determining the degree of protection needed to meet the criteria of section 7409(b) is not "in accordance with" section 7409(b), and leaves EPA's standard without a reasoned basis. *Id*. *American Farm Bureau Federation* establishes that when EPA revises a NAAQS, the revised standard must be one that EPA judges will provide the requisite degree of protection, *i.e.*, be in accordance with section 7409(b). EPA's interpretation of section 7409(d) is consistent with this opinion. Where EPA cannot make a reasoned determination that a revision provides the requisite degree of protection, and therefore would be "in accordance with" section 7409(b), then EPA is not required to revise the standard.

Similarly, in *American Trucking Ass'ns v. EPA*, 175 F.3d 1027, 1040-41 (D.C. Cir. 1999), *rev'd on other grounds, Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457 (2001), the Court addressed the argument that consideration of costs is one pertinent factor in determining whether revision of a NAAQS is "appropriate." The Court rejected this argument, stating that it "ignores the clause immediately following 'appropriate,' which incorporates [section 7409(b)] and thereby

affirmatively precludes consideration of costs in revising NAAQS." 175 F.3d at 1040. Likewise, the Court addressed the argument that certain provisions in Title I of the CAA, adopted to reduce ozone levels throughout the country, preclude EPA from revising the primary and secondary ozone NAAQS by rendering revisions "inappropriate" within the meaning of section 7409(d)(1). *Id*. at 1045-45; 1047. The Court held that "appropriateness" under section 7409(d)(1) "is to be determined 'in accordance with section 7408 ... and [section 7409(b)],'" and noted that, in the Court's view, the phrase "in accordance with" sections 7408 and 7409(b) "means exclusively in accord with those sections." *Id*. at 1047. Because under *American Trucking* section 7409(b) is the sole measure of whether or not it is appropriate to revise a NAAQS, a revised standard would not be appropriate if the revision establishes a level of air quality that EPA cannot reasonably determine would meet the criteria of section 7409(b). By the same reasoning, EPA can decide it is not appropriate to revise a standard where EPA cannot make a reasoned determination that a revision would be in accordance with section 7409(b).

Under Petitioners' reading, the phrase in section 7409(d), "as may be appropriate in accordance with" section 7409(b), becomes superfluous. This is contrary to traditional canons of statutory interpretation. *See Consumer Fed'n of Am. & Public Citizen v. U.S. Dept. of Health & Human Services*, 83 F.3d 1497, 1503 (D.C. Cir. 1996) ("If 'as appropriate' is to have any effect, then, it must mean

that the agency must specifically include the risks and consequences factors in its regulations only to the extent appropriate. To conclude otherwise, as Consumer Federation advocates, would violate a basic canon of statutory construction by treating the two words as surplusage.").

Petitioners incorrectly assume that EPA has an independent duty to determine the national target, or requisite, degree of protection, separate and apart from the duty to specify an air quality level that achieves the target degree of protection. Pet. Br. at 27-28. *See also id.* at 34 (arguing that EPA has a mandatory duty first to identify a requisite level of protection and then to set the standard to achieve that level of protection). Petitioners' argument flows from a misreading of *American Farm Bureau Federation*. According to Petitioners, that case requires EPA to "first identify the requisite level of protection for the affected welfare value and then set the secondary NAAQS to achieve that level of protection." Pet. Br. at 30. However, there is no free-standing independent duty to determine the requisite degree of protection separate from the process of setting the standard. Instead, the statutory duty under section 7409(b) is to specify an air quality level (*i.e.*, set a standard) that attains and maintains a degree of protection that the Administrator judges is requisite. If EPA cannot make a reasoned determination that any particular air quality level will attain and maintain any particular degree of protection that the Administrator determines to be requisite, then a revision would

not be in accordance with section 7409(b). EPA is not required to make a revision that would not be in accordance with section 7409(b).

In *American Farm Bureau Federation*, EPA did revise a NAAQS, and the Court recognized that a central step in that process is EPA's determination of what degree of protection is judged by the Administrator to be requisite. But that does not address the case where, as here, EPA is not able to make a reasoned determination that a revised standard would meet the criteria of section 7409(b). Here, EPA's proposal discussed a range of possible values for the national level of acid neutralizing capacity and a range of percentile of waterbodies that must meet that level, amounting to a range of potential protection. The final rule did not determine what degree of protection would be requisite, because EPA could not determine that any specific level of air quality would achieve any particular degree of protection that EPA might judge to be requisite. 77 Fed. Reg. at 20,255/3 (JAxxxx). This stemmed from EPA's inability to determine for many areas of the country the degree of protection any standard based on the Index would actually achieve. *Id*. at 20,255/3; *see also id. at* 22,262/3 ("At present, in the Administrator's judgment, the unique uncertainties present in this review are of such significance that they preclude a reasoned understanding of the degree of protectiveness that would be afforded to various ecoregions across the country by a new standard defined in terms of a specific nationwide target ANC level and a

specific percentile of water bodies for acid-sensitive ecoregions, together with an [Index] defined in terms of ecoregion-specific F factors.") (JAxxxx, xxxx). Based on this, the Administrator judged that the current data limitations and uncertainties in specifying the elements of the Index prevented her from reaching a reasoned judgment as to what standard would provide any degree of protection that the Administrator might determine was requisite. *Id*. at 20,255/3 (JAxxxx).

In this context, it was not necessary for the Administrator to go further and decide in the abstract what degree of protection was requisite, as this would not change her decision to not revise the standard. No matter what degree of protection EPA were to determine to be requisite, EPA would still be unable to make a reasoned determination that any standard based on the chosen national level of acid neutralizing capacity and percentile of waterbodies, using the modeled F factors for the ecoregions, would be sufficient but not more than necessary to achieve this desired degree of protection. *See Whitman*, 531 U.S. at 476 ("requisite" means "not lower or higher than necessary").

EPA therefore reasonably interpreted section 7409(d)'s obligation to revise the standard "as may be appropriate in accordance with" section 7409(b) to mean that EPA is not required to revise the standard when, in the Administrator's judgment, the uncertainties are so high that the Administrator is not able to make a

reasoned determination that the revised standard would meet the criteria of section 7409(b).

Petitioners' contrary interpretation of 7409(d)(1) not only reads the phrase "as may be appropriate" out of the statute, but is also inconsistent with their focus on aquatic acidification. EPA has identified four different effects on public welfare due to the deposition of oxides of nitrogen and sulfur: acidification of aquatic ecosystems, acidification of terrestrial ecosystems, nutrient enrichment in terrestrial ecosystems, and nutrient enrichment in aquatic ecosystems. EPA found that the existing secondary NAAQS for NO2 and SO2 are not requisite to protect against any of these effects, but based on the state of the science, EPA was only able to even attempt to develop a framework to address one of these four effects, aquatic acidification. Policy Assessment at 7-77 (information is insufficient to address anything except aquatic acidification) (JAxxxx-xxxx); 77 Fed. Reg. at 20,222/2-3 (EPA chose to focus on aquatic acidification because that is the area in which scientific linkages among atmospheric concentrations, deposition, and environmental effects are most clearly established) (JAxxxx); 77 Fed. Reg. at 20,242/2 (Clean Air Scientific Advisory Committee agreed focus should be on aquatic acidification) (JAxxxx). Petitioners' interpretation would require EPA to revise the NAAQS to specify a level of air quality that is requisite to protect against *all* of these effects.

Congress required EPA to revise the standards when that can be done in accordance with section 7409(b). Here, EPA determined that it could not adopt a standard that would be in accordance with section 7409(b) and there is nothing in section 7409(d)(1) to indicate that Congress unambiguously required EPA to revise a NAAQS even if EPA cannot make a reasoned determination that the revised NAAQS meets the criteria of section 7409(b). EPA reasonably interpreted section 7409(b) as not requiring a revision under these circumstances.

B. Revision Of A NAAQS Is Not Appropriate Where EPA Cannot Make A Reasoned Determination That The Standard Will Provide The Requisite Degree Of Protection.

Independent of the statutory text, Petitioners argue that uncertainty can never be a sufficient reason to justify a decision not to set a NAAQS. Pet. Br. at 31-32. But Petitioners' argument conflicts with the requirement that a revised standard be one that is judged by the Administrator to be "requisite," because Petitioners would require EPA to set a NAAQS even if the Administrator cannot make a reasoned determination that the standard will not be over- or under-protective.

EPA agrees with Petitioners that perfect knowledge is not required before the Agency can act. Pet. Br. at 32. Thus, in *Coal. of Battery Recyclers Ass'n v. EPA*, 604 F.3d 613 (D.C. Cir. 2010), although there was uncertainty about the precise degree of risk posed by ambient concentrations of lead, EPA understood the effect on public health (in that case, IQ loss) and had a reasoned basis to set the

standard at a level that would provide the requisite degree of protection against that adverse effect. 604 F.3d at 616-17; *see also id.* at 619. Similarly, EPA in this case has a good understanding of the science underlying the relationship between ambient concentrations of nitrogen and sulfur compounds and the aquatic acidification related to the deposition of those compounds, such that the general structure of an Index based standard is well grounded. 77 Fed. Reg. at 20,260/1 (JAxxxx). The Index thus does a good job in general of predicting how much deposition of oxides of nitrogen and sulfur will fall in a particular ecoregion given a particular concentration of these air pollutants. This, however, is not the uncertainty that EPA cited in deciding not to revise the standards, as discussed below and in Argument III. Petitioners set up a straw man, Pet. Br. at 43, by pointing to uncertainties that exist but that are not the main uncertainties that prevent EPA from revising the secondary NAAQS. *See, e.g.*, 77 Fed. Reg. at 20,255/1 (explaining that EPA's decision is based on uncertainties "in the elements needed to derive the quantified F factors for ecoregions across the country and our ability to evaluate the representativeness of those F factors for an entire ecoregion"); *id*. at 20,262/1-2 (recognizing that the uncertainties at issue in this NAAQS review are "in sharp contrast" to the types of uncertainties present in other NAAQS reviews) (JAxxxx, xxxx).

EPA also has a good understanding, for some specific lakes and streams, of what those waterbodies' critical loads are, *i.e.*, what level of deposition will allow the waterbody to meet a target level of acid neutralizing capacity. However, NAAQS are not set waterbody-by-waterbody. The Index requires more than the target critical load for a particular waterbody, or even for a sample of waterbodies. Instead, EPA must determine the critical load that is representative of the desired percentile of waterbodies across an entire ecoregion, and do so for 84 separate ecoregions (the F1 factor). EPA must also determine the deposition of reduced nitrogen for each of the 84 ecoregions (the F2 factor), and the "transference ratios" by which EPA converts ambient concentrations of NOy and SOx into the deposition of these oxides (the F3 and 4 factors). Without adequate information to quantify these factors, there is no reasoned way to determine that an Index-based standard is protective enough, or too protective, to achieve the desired level of acid neutralizing capacity for the desired percentile of waterbodies. 77 Fed. Reg. at 20,255/3 (JAxxxx). In other words, the great uncertainties surrounding representative critical loads and deposition of reduced nitrogen (the F1 and F2 factors), in combination with the uncertainties related to deposition of oxides of nitrogen and sulfur (the F3 and 4 factors), go directly to whether EPA can make a reasoned determination that a standard it sets will provide the requisite degree of protection. This is a different type of uncertainty than what Petitioners focus on,

and it goes directly to EPA's ability to revise the NAAQS in accordance with section 7409(b).

If EPA had proceeded to revise the standard by selecting a level of air quality that was more protective than the existing NAAQS, but EPA did not or could not judge that the standard would provide the "requisite" degree of protection, EPA's action would have been subject to challenge for that reason.

Massachusetts v. EPA, 549 U.S. 497 (2007) supports EPA's decision, contrary to Petitioners assertion. Pet. Br. at 33. The statutory provision at issue in *Massachusetts*, 42 U.S.C. § 7521(a)(1), required EPA to "prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 549 U.S. at 506. After finding that at least one petitioner had standing and that the statute allows EPA to regulate the emissions of greenhouse gases as "pollutants," *id*. at 532, the Court reversed EPA's decision not to exercise that authority. EPA had concluded that it would be neither effective nor appropriate to make a determination concerning endangerment and issue regulations, for various policy-related reasons. The Court faulted EPA for relying on reasons "divorced from the statutory text." *Id*. Specifically, the Court held that

under section 7521(a)(1), "EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." *Id.* at 533. The Court found that instead of making such a determination, EPA had relied on "policy judgments" such as a preference for using other regulatory programs and a concern over impairing the President's ability to conduct foreign policy. *Id.* The Court explained that none of these reasons have anything "to do with whether greenhouse gas emissions contribute to climate change," which is the relevant statutory question. Nor are they a "reasoned justification for declining to form a scientific judgment. *Id.* at 533-34.

EPA's decision regarding the secondary NAAQS is different. Unlike in *Massachusetts*, here EPA did provide a reasoned justification for declining to proceed, based on the state of the science, and that justification is tied directly to the relevant statutory question, *i.e.*, would a revised standard provide the requisite degree of protection. EPA did not rely on policy considerations unrelated to this statutory question. In fact, EPA has consistently taken the position that it is inappropriate to revise a NAAQS, even if there is information that the current standard is no longer sufficient to ensure the requisite degree of protection, where there is sufficient uncertainty that a revised standard will do so. *See supra* at 6-9

(discussing history of EPA's prior considerations of the secondary NAAQS for oxides of nitrogen and sulfur).

In the administrative decision under review in *Massachusetts*, EPA also pointed to scientific uncertainty as a reason for declining to act. *Id*. at 513. According to the Court, EPA in that case gave "controlling importance" to its inability unequivocally to establish a causal link between increased concentrations of greenhouse gases as a result of human activities and increased global surface air temperatures. *Id*. EPA decided that "it would therefore be better not to regulate at this time." *Id.* at 534. The *Massachusetts* Court recognized that an endangerment determination might not need to be made "[i]f the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment as to whether greenhouse gases contribute to global warming," but noted that EPA did not make that conclusion. Instead, EPA concluded it would not be appropriate to proceed, whereas the "statutory question is whether sufficient information exists to make an endangerment finding." *Id.* at 534.

Here, in contrast, EPA determined it was not appropriate to proceed, *because* the scientific uncertainty is so profound that the Administrator could not make a reasoned judgment as to whether a revised standard would be in accordance with section 7409(b), *i.e.*, whether or not a revised NAAQS would be requisite to protect public welfare against the impacts on the aquatic environment

from acidifying deposition of oxides of nitrogen and sulfur – much less against other impacts, such as terrestrial acidification and nutrient enrichment. 77 Fed. Reg. at 20,256/1 (JAxxxx). As the Court in *Massachusetts* directed EPA to do, EPA has grounded its reason for inaction in the statute, by concluding that because the Administrator could not make a reasoned determination whether or not a revised standard would provide the requisite level of protection from these impacts, it would be inappropriate to revise the secondary NAAQS. While the reasonableness of that determination depends on the administrative record, discussed in Argument III, below, nothing in the statute unambiguously precludes EPA from declining to revise a NAAQS based on such a determination.

III. EPA'S DECISION NOT TO ESTABLISH A NEW SECONDARY NAAQS AT THIS TIME IS SUPPORTED BY THE ADMINISTRATIVE RECORD AND ADEQUATELY EXPLAINED.

A. The Administrative Record Supports EPA's Determination Not To Revise The Standard At This Time.

EPA's decision not to establish a new secondary standard at this time is well-supported by the administrative record. The difficulty of establishing a representative value for the F1 factor in the Index for all 84 ecoregions illustrates the uncertainties the Administrator faced. As noted above, the F1 factor is designed to identify the "critical load" of deposition for a particular ecoregion that is associated with a desired level of acid neutralizing capacity and a desired

percentile of waterbodies. This critical load identifies the amount of deposition that can occur and still achieve the desired acid neutralizing capacity for the desired percentile of waterbodies in the specific ecoregion.

However, the natural ability of any particular waterbody in an ecoregion to neutralize acid is affected by many characteristics of the ecoregion. For example, base cations are positive ions of calcium, magnesium, potassium, and sodium, which counteract acidification and affect the natural ability of a waterbody to neutralize acid. Policy Assessment at xiv, 2-67, 3-2, 7-62 (JAxxxx, xxxx, xxxx, xxxx). The supply of base cations depends on factors such as weathering, erosion, and the pre-industrial composition of the soil. *Id*. at 7-19 (JAxxxx). The amount of nitrogen taken up by plants also affects a waterbody's ability to neutralize acid. *Id*. at 7-28 (JAxxxx). In addition, the runoff rate in a particular basin also influences the natural ability of the waterbodies in an ecoregion to neutralize acid. *Id*. at ES-9 (JAxxxx); *see generally* 77 Fed. Reg. at 20,245 (JAxxxx). Both the base cation supply and the runoff rate at the basin level are aspects of the Index where the uncertainty is high. Policy Assessment at 7-74 to 7-75 (JAxxxx-xxxx); *see also* 77 Fed. Reg. at 20,249/2 (the critical load-related component of the Index has "much higher uncertainties") (JAxxxx). Each of these characteristics is unique to each waterbody and can vary among waterbodies in different ecoregions as well as within the same ecoregion. Each of these characteristics must be evaluated on

an ecoregion-wide basis, in order to develop a critical load that represents the entire ecoregion, and that achieves a national target level of acid neutralizing capacity and percentile of waterbodies.

Data can be collected for a specific waterbody, and the average surface runoff rate, in meters per year, for a particular basin can be calculated, and together these can be used to estimate a particular waterbody's base cation supply and nitrogen uptake, and thus the critical load for that waterbody, *i.e.*, the amount of deposition that can occur and still attain the desired level of acid neutralizing capacity for that waterbody. However, a national standard must address aquatic acidification for waterbodies across all 84 ecoregions. In order to do so, EPA must have information and data on the characteristics of the ecoregions and its waterbodies, across the range of waterbodies in the ecoregion. EPA then uses modeling to estimate the representative critical load for that ecoregion. There is a wide disparity across ecoregions as to degree of data available to EPA to determine the representative critical load for the ecoregion. While EPA had a reasonable supply of information for some of the more well-studied ecoregions, especially in the eastern United States, for many ecoregions the supply of information was much more limited. 77 Fed. Reg. at 20,261/2 (JAxxxx). As a result, for many ecoregions there was great uncertainty in modeling the appropriate F1 factor for

that ecoregion that would achieve the desired level of acid neutralizing capacity and the desired percentile of waterbodies in the ecoregion.

The Clean Air Scientific Advisory Committee echoed this concern, noting that "the available data may reflect the more sensitive waterbodies and thus, the selection of percentiles of waterbodies to be protected could be conservatively biased." Committee Comments at 2 (JAxxxx). Petitioners assert that this concern is limited to the context of "future" EPA work and does not express any view by the Committee that EPA should not revise the secondary NAAQS. Pet. Br. at 46. But, the Committee's actual comment is that "[a]s EPA moves forward in *this* regulatory process, we recommend some attention be given to our concern" regarding potential bias in the Index due to data limitations. Committee Comments at 2 (JAxxxx). The "process" to which the Committee refers is not a decision how to implement such a standard once it is adopted, as Petitioners suggest. Rather, the process is the rulemaking at issue in this case, *i.e.*, the decision whether or not to adopt an Index-based standard.

EPA also faced significant uncertainties regarding the F2 factor in the Index, which addresses the deposition of reduced forms of nitrogen, such as ammonia, as opposed to oxides of nitrogen. The "high uncertainty" involved in characterizing this aspect of aquatic acidification is due to the lack of field information about ammonia deposition, the difficulty in obtaining such information (due to the

diffuse nature of its sources, which are both area-wide and non-point), and the complex chemistry and dispersal patterns that ammonia presents. 77 Fed. Reg. at 20,249/3 (JAxxxx), 76 Fed. Reg. at 46,131/2 ("Field measurements of [reduced nitrogen] have been extremely limited, but have begun to be enhanced") (JAxxxx). Although the F3 and F4 factors also suffer from important and significant uncertainties, the F1 and F2 factors are the greatest sources of uncertainty. *Id*. at 20,255/1 (JAxxxx).

As Petitioners note, Pet. Br. at 47-48, the Clean Air Scientific Advisory Committee did conclude that EPA has a "broad but reasonable range of minimally to substantially protective options for the standard." Committee Comments at 9. But that misses the point; as explained above, there is no need for EPA to establish the requisite degree of protection, if the uncertainties regarding the representative nature of the Index are so great that EPA cannot ensure that any degree of protection that is desired will be obtained. Because the administrative record supports EPA's conclusion that it is not appropriate to revise the NAAQS to address acidification of aquatic ecosystems at this time, EPA's decision should be upheld, given the deference due EPA's evaluation of the complex scientific and technical issues facing the Agency.

Finally, although Petitioners argue that there is an ample basis on which the Administrator can establish a secondary NAAQS to address aquatic acidification,

Pet. Br. at 36-41, nowhere do Petitioners assert that the Administrator has any basis on which to establish a NAAQS to address terrestrial acidification or nutrient enrichment. As noted above, EPA devoted its resources on aquatic acidification, with the concurrence of the Clean Air Scientific Advisory Committee, and the Index only addresses that welfare effect. Because there is absolutely nothing in the record to indicate that EPA could select a standard that would ensure a level of air quality requisite to protect the public welfare from terrestrial acidification or nutrient enrichment, EPA's decision that it is not appropriate to establish a NAAQS at this time to address those effects should also be upheld.

B. EPA Adequately Explained The Basis For Its Decision.

Petitioners assert that EPA simply recited several uncertainties, such as limitations in the available data and uncertainty regarding models, all of which were discussed in the Policy Assessment and the Clean Air Scientific Advisory Committee review, and that EPA "asserted in conclusory fashion" that a standard could not be set. Pet. Br. at 43-44. Although EPA did note these uncertainties, they are not the primary bases for EPA's decision, and Petitioners' attempt to focus the Court's attention on these "red herrings" should be rejected.

Instead, the key uncertainties, as EPA explained, are not merely data gaps or limitations in modeling but the direct impact these shortcomings have on determining whether the information that EPA possesses is representative of

conditions on an ecoregion-wide basis. EPA explicitly explained its reasoning in the preamble. *See, e.g.*, 77 Fed. Reg. at 20,261/1 (reciting the uncertainty of quantifying the F factors and "their representativeness at an ecoregion scale"); *id.* at 20,261/2 (explaining that even where data exists for a particular ecoregion, "small sample sizes in some areas impede efforts to characterize the representativeness of the available data at an ecoregion scale"); *id*. (explaining that the nature of uncertainties "fundamentally different than uncertainties that have been relevant in other NAAQS reviews"); *id*. at 20,261/3 (noting that an important uncertainty "relates to limitations in the extent to which the representativeness of various factors can be determined at an ecoregion scale, which has not been a consideration in other NAAQS"); *id*. (explaining that uncertainties affect how well an Index-based standard "would predict the actual relationship" and therefore EPA's ability to characterize the protectiveness) (JAxxx).

Aside from the complexity of the undertaking, this is unlike most NAAQS rulemakings. EPA's typical approach is to establish standards which compare monitored concentrations of an air pollutant against a numerical metric of atmospheric concentration that does not vary geographically. This approach has appropriately protected public health, as at-risk populations are widely distributed throughout the nation. In contrast, in order to provide the requisite level of protection to public welfare from effects on sensitive ecosystems from pollutants

such as oxides of nitrogen and sulfur, EPA must consider variable factors such as atmospheric variables and location-specific characteristics of ecosystems. Policy Assessment at 1-13 (JAxxxx). This secondary NAAQS review thus presents unique scientific and technical challenges, because in it EPA is attempting to develop a standard that relies not just on ecological and atmospheric modeling, but also on the ability of those models to generate values that are representative throughout an entire ecosystem. *See*, *e.g.*, 77 Fed. Reg. at 20,261/2-3 (JAxxxx).

EPA explained the areas where there is greater certainty, such as the scientific concepts at issue and the boundaries of the ecoregions, and EPA explained in detail the sources of uncertainty and how these uncertainties relate to the science-based public welfare decision before the Agency. Specifically, EPA explained how these uncertainties affect the Agency's ability to determine the protectiveness of any specific standard. EPA also explained the Administrator's final decision, and the Agency's plans for the future development of a pilot project. EPA's explanation carefully tied its decision to the factual record and explained how this record supported its decision. This more than satisfies the Agency's obligation to explain its decision based on the record before it.

IV. THE COURT SHOULD NOT IMPOSE A DEADLINE FOR EPA TO ESTABLISH A NEW SECONDARY NAAQS.

The Court should decline Petitioners' request to set a 14-month deadline for EPA to act if the Court remands EPA's decision for further consideration. Pet. Br. at 48-49. *See Natural Res. Def. Council v. EPA*, 489 F.3d 1364, 1375 (D.C. Cir. 2007) ("We decline to set a two year limit on EPA's proceedings on remand as the NRDC requests; mandamus affords a remedy for undue delay."); *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008) (per curiam) (declining invitation to "impose a definitive deadline by which EPA must correct [clean air rule's] flaws" and reminding petitioners of availability of mandamus). Although Petitioners point out that they had to sue EPA and obtain a consent decree in order for the Agency to complete this review, Pet. Br. at 48, EPA did act within the decree's timeframe. The Court can and should presume that in the event of a remand, EPA will act diligently to reach a final decision consistent with the Court's opinion.

CONCLUSION

For the foregoing reasons, the petition should be denied.

Respectfully submitted,

IGNACIA S. MORENO
Assistant Attorney General

__/s/ Daniel R. Dertke _____
DANIEL R. DERTKE
Environmental Defense Section

Environment and Natural Resources Div.
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044
(202) 514-0994

February 19, 2013

CERTIFICATE OF COMPLIANCE WITH WORD LIMITS

Pursuant to Fed. R. App. P. 37(a)(7)(C), and exclusive of the components of the brief excluded from the word limit pursuant to Fed. R. App. P. 32(a)(7)(B)(iii) and Circuit Rule 32 (a)(1), I certify that the foregoing Brief for Respondent contains 11,269 words, as counted by the "word count" feature of my Microsoft Office Word software.

/s/ Daniel R. Dertke
DANIEL R. DERTKE

CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of the foregoing Brief for Respondents via the Court's CM/ECF system on this 19th day of February, 2013.

/s/ Daniel R. Dertke
DANIEL R. DERTKE