

ORAL ARGUMENT NOT YET SCHEDULED

Case No. 17-1273

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

STATE OF NEW YORK, *et al.*,*Petitioners,*

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,*Respondents.*

Petition for Review of Final Action by the
United States Environmental Protection Agency

**AMICUS CURIAE BRIEF OF CHESAPEAKE BAY FOUNDATION, INC.
AND SIERRA CLUB IN SUPPORT OF PETITIONERS' REQUEST FOR
VACATURE**

JOSHUA BERMAN
ANDREA MARSHALL
Sierra Club
50 F. Street NW, 8th Floor
Washington, DC 20001
Phone: (202) 650-6062
josh.berman@sierraclub.org

ARIEL SOLASKI
JON A. MUELLER
Chesapeake Bay Foundation, Inc.
6 Herndon Ave.
Annapolis, MD 21403
Phone: (443) 482-2171
asolaski@cbf.org

*Counsel for Amicus Curiae Sierra Club**Counsel for Amicus Curiae
Chesapeake Bay Foundation, Inc.*

**CERTIFICATE AS TO PARTIES, RULING UNDER REVIEW,
AND RELATED CASES**

Pursuant to D.C. Circuit Rule 28(a)(1), the undersigned counsel of record certifies as follows:

A. Parties and Amici.

All parties, intervenors, and *amici* appearing in this court are listed in the Brief for Petitioners, *State of New York v. EPA*, No. 17-1273, at i-ii (D.C. Cir. Doc. No. 1731043, filed May 15, 2018).

B. Rulings Under Review.

References to the rulings at issue appear in the Brief for Petitioners, *State of New York v. EPA*, No. 17-1273, at ii (D.C. Cir. Doc. No. 1731043, filed May 15, 2018)

C. Related Cases

The final agency action at issue in this proceeding has not been previously reviewed in this or any other court. There are no related cases within the meaning of D.C. Circuit Rule 18(a)(1)(C).

/s/ Joshua Berman

Joshua Berman

Senior Attorney

Sierra Club

50 F St. NW, 8th Floor

Washington, DC 20001

Phone: (202) 650-6062

Fax: (202) 547-6009

josh.berman@sierraclub.org

RULE 26.1 CORPORATE DISCLOSURE STATEMENT

Pursuant to Fed. R. App. P. 26.1 and D.C. Circuit Rule 26.1, and as filed in this court on May 4, 2018 (Doc. No. 1729608), *amici curiae* make the following disclosures:

1. **Chesapeake Bay Foundation, Inc.** is a non-profit corporation organized under the laws of the State of Maryland. CBF is dedicated to protecting the Chesapeake Bay and its tributary rivers and streams by improving water quality and reducing pollution. CBF does not have any parent corporations, and no publicly held corporation has a 10 percent or greater ownership interest in CBF.
2. **Sierra Club** is a non-profit corporation organized under the laws of the State of California. Sierra Club's mission is to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. Sierra Club does not have any parent corporations, and no publicly held corporation has a 10 percent or greater ownership interest in Sierra Club.

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GLOSSARY OF ABBREVIATIONS

Act	Clean Air Act
EPA	United States Environmental Protection Agency
NAAQS	National Ambient Air Quality Standards
Transport Region	Ozone Transport Region
Section 184	42 U.S.C. § 7511c
OTC	Ozone Transport Commission
NO _x	Nitrogen oxides
VOCs	Volatile organic compounds
Good Neighbor Provision	42 U.S.C. §7410(a)(2)(D)(i)(I)
SIP	State implementation plan
CSAPR Update	2016 Cross-State Air Pollution Rule
Ppb	Parts per billion
Bay TMDL	Chesapeake Bay Total Maximum Daily Load

STATUTES AND REGULATIONS

Except for the following, all applicable statutes and regulations are contained in the Addendum to Petitioners' Opening Brief. Doc. No. 1731045, filed May 15, 2018:

42 U.S.C. § 7502(a)(2)(B): The attainment date for an area designated nonattainment with respect to a secondary national ambient air quality standard shall be the date by which attainment can be achieved as expeditiously as practicable after the date such area was designated nonattainment under section 107(d) [42 USCS § 7407(d)].

40 C.F.R. § 50.19(b): The 8-hour primary O₃ ambient air quality standard is met at an ambient air quality monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentration is less than or equal to 0.070 ppm, as determined in accordance with appendix U to this part.

STATEMENT OF IDENTITY, INTEREST IN CASE, AND SOURCE OF AUTHORITY TO FILE

As regional and national non-profit conservation organizations, Chesapeake Bay Foundation ("CBF") and Sierra Club submit this *amicus curiae* brief in support of the Petitioning States of the Ozone Transport Region.

Sierra Club is the nation's oldest and largest grassroots environmental organization, with approximately 800,000 members, including more than 175,000

members in the Ozone Transport Region. It is Sierra Club's mission to explore, enjoy, and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's resources and ecosystems; and to educate and enlist humanity to protect and restore the quality of the natural and human environment. Sierra Club and its members are greatly concerned about the effects of air pollution, including ozone pollution, on human health and the environment and have worked for years to promote attainment of air quality standards within the Ozone Transport Region.

CBF is a regional, not-for-profit organization dedicated to protecting the Chesapeake Bay and its tributary rivers and streams by improving water quality and reducing nutrient and sediment pollution, including nitrogen pollution emitted into the air. CBF has more than 240,000 members, many of whom live throughout the Chesapeake Bay watershed and the Ozone Transport Region. For fifty years, in fulfillment of its mission to "Save the Bay," CBF has engaged in education, advocacy, litigation, and restoration throughout the 64,000-square-mile watershed.

Amici's interest in this case stems from their organizational missions to protect and restore the environment, including air quality, for the benefit of their members and for the ecosystems and wildlife that depend upon a clean and healthy environment. In addition to decades of work to achieve these missions, *amici*

submitted comments and delivered testimony during the public participation phase of EPA's review of the 176A petition that is the subject of this case.¹

Pursuant to D.C. Circuit Rule 29(b), and the guidance set forth in Section IX(A)(4) of this Court's Handbook of Practice and Internal Procedures, Sierra Club and CBF notified this Court of their intent to file a joint *amicus curiae* brief in the above-captioned matter on May 4, 2018 (Doc. No. 1729608). In the notice, *amici* informed the Court that all parties² consent to the filing of this *amicus curiae* brief.

STATEMENT OF AUTHORSHIP AND FINANCIAL CONTRIBUTIONS

No party's counsel authored this brief in whole or in part or contributed money that was intended to fund the preparation or submission of this brief. No person—other than the *amici curiae*, their members, or their counsel—contributed money that was intended to fund the preparation or submission of this brief.

¹ Sierra Club Comments, EPA-HQ-OAR-2016-0596-0108; CBF Comments, EPA-HQ-OAR-2016-0596-0115; Sierra Club Testimony, EPA-HQ-OAR-2016-0596-0123; April 13, 2017 Public Hearing Transcript, EPA-HQ-OAR-2016-0596-0053 (CBF testimony at 16–19); *available at* regulations.gov.

² Intervenor Utility Air Regulatory Group takes no position on the filing of this *amicus curiae* brief.

SUMMARY OF ARGUMENT

Ozone pollution in the Transport Region causes actual and significant harm to public health and the environment, including *amici*'s members and supporters. Children, the elderly, and other vulnerable populations are particularly at risk given their heightened sensitivity to ozone pollution, and people of color are disproportionately impacted, raising important environmental justice concerns. Furthermore, ozone and its precursor pollutants negatively impact vegetation and water quality in the Transport Region, including the Chesapeake Bay and its tributary rivers and streams. Fifty percent of the nitrogen deposited to the Chesapeake Bay watershed via air pollution comes from states outside of the Chesapeake Bay watershed, including the states that the 176A petition asks to be added to the Transport Region.

Based on the public health and environmental consequences of their inability to attain EPA's National Ambient Air Quality Standards for ozone, the Petitioning states have asked EPA to use the tool provided by the Clean Air Act—section 176A—to add nine upwind states to the Transport Region. This is to ensure that all states contributing to the ozone problem in the Northeast are involved in the solution. EPA's denial of the 176A petition is arbitrary and unlawful, however, because the agency's purported rationale is belied by its relevant actions.

In denying the 176A petition, EPA engages in a shell game, professing a preference for resolving interstate ozone transport issues through alternative Clean Air Act mechanisms to block relief under section 176A. However, as Petitioners' Opening Brief demonstrates, EPA cannot rationally point Petitioners to the availability of relief under the "good neighbor" provision in light of EPA's record of delay, inaction, and failure to fully address the ozone problem using this tool. Moreover, in its recent denial of Connecticut's section 126 petition, rather than open an alternative avenue for relief to downwind states, EPA has instead erected novel barriers that severely limit the availability of relief pursuant to this section. EPA's purported reliance on the availability of section 126 as a basis to deny the 176A petition while curtailing the use of section 126 is arbitrary and capricious.

Finally, EPA's denial of the 176A petition is inherently unfair to downwind states and their residents as they are burdened by excess ozone pollution and the associated human health and environmental costs, and are limited in their ability to reduce the pollution transported from out-of-state sources. EPA's decision to deny the 176A petition ignores the significant benefits that would be achieved by reducing the interstate transport of ozone and its precursor pollutants, in addition to more equitably and adequately protecting human health and ecosystems in the downwind states of the Transport Region.

ARGUMENT

I. Introduction—Legal and Factual Background

a. Protection of air quality under the Clean Air Act and prior efforts to address transported ozone.

The Clean Air Act (“the Act”) requires the United States Environmental Protection Agency (“EPA”) to establish health and welfare-based National Ambient Air Quality Standards (“NAAQS”) and requires areas not meeting these standards to attain them as expeditiously as possible. 42 U.S.C. §§ 7409, 7502. For decades, Congress and EPA have known that certain pollutants transported across interstate lines can interfere with downwind states’ ability to attain and maintain the NAAQS. Despite efforts to address interstate transport of pollution through the 1977 amendments to the Act, poor air quality continued to plague areas of the country.

In 1990, in recognition of the regional nature of ozone pollution and the persistent challenges for individual states to ameliorate failing air quality, Congress once again amended the Act and created the Ozone Transport Region (“Transport Region”). 42 U.S.C. § 7511c (“section 184”). Section 184 attempted to collaboratively address systemic ozone issues in the nation’s Northeast and Mid-Atlantic states by forming a multi-state Ozone Transport Commission (“OTC”), comprising representatives from each Transport Region state. *See id.* Section 184 also included a mechanism to expand the reach of the Transport Region to other

states through section 176A(a)(1) of the Act “whenever the Administrator has reason to believe that the interstate transport of air pollutants from such State significantly contributes to a violation of the standard in the transport region” 42 U.S.C. § 7506a(a)(1).

States within the Transport Region are required to impose certain air pollution control requirements to reduce ozone and its primary precursor pollutants, nitrogen oxides (“NO_x”) and volatile organic compounds (“VOCs”). Through the implementation of these control requirements, Transport Region states have significantly reduced their emissions of ozone precursors.

Nevertheless, many Transport Region states remain out of attainment for one or more of EPA’s primary or secondary ozone NAAQS due in significant part to transported pollution from upwind, non-Transport Region states.

b. EPA has failed to meaningfully implement additional provisions of the Clean Air Act—110(a)(2)(D) good neighbor provision and 126 petitions—targeting interstate air pollution.

The Act includes additional, complementary tools targeting transported air pollution: namely, the “good neighbor provision” (section 110(a)(2)(D)(i)(I)) and section 126. *See* 42 U.S.C. §§ 7410(a)(2)(D)(i)(I); 7426. By its terms, the good neighbor provision requires states in their state implementation plans (“SIPs”) to prohibit emissions from in-state sources that contribute significantly to nonattainment or interfere with maintenance of the NAAQS in other states. 42

U.S.C. § 7410(a)(2)(D). In practice, states upwind from the Transport Region have not submitted SIPs that fulfill this obligation and EPA to date has failed to promulgate a federal implementation plan that fully remedies this failure. 82 Fed. Reg. at 6518/3 (Jan. 19, 2017). EPA agreed that its 2016 Cross-State Air Pollution Rule (“CSAPR Update”) was only a partial fix and acknowledged that the proposed reductions “did not fully address upwind states’ emission reduction obligation pursuant to the good neighbor provision.” Petitioners’ Brief at 16, *State of New York v. EPA*, No. 17-1273 (D.C. Cir. Doc. No. 1731043, filed May 15, 2018).

Section 126 of the Act authorizes a state or political subdivision to petition EPA to make a finding that a source or a group of sources beyond the state’s borders may be emitting in excess of what the good neighbor provision would allow. Petitioners’ Brief at 10. Since 2016, Transport Region states New York, Delaware, Maryland, and Connecticut have filed seven separate section 126 petitions targeting a number of upwind sources. EPA has taken no action regarding six of the seven petitions apart from extending its deadlines to respond to the petitions. As detailed in Section III(b)(i) below, the sole response to Connecticut’s 126 petition—under a court-mandated response deadline—largely eviscerates section 126 petitions as tools to combat transported pollution through novel and restrictive interpretations of 126’s requirements.

In December 2013, nine³ Transport Region states filed a petition under section 176A requesting that EPA expand the Transport Region to include eight states—and portions of Virginia not already in the Transport Region—that their analysis and EPA’s own modeling shows contribute significantly to nonattainment in the Transport Region. On November 3, 2017, EPA issued a final denial of Petitioners’ 176A petition, citing its preference for other provisions—the “good neighbor” provision and section 126—to address interstate transport of ozone pollution. Petitioners’ Brief at 30. Sierra Club and CBF file this brief in support of Petitioners in their suit against EPA arguing that EPA acted arbitrarily and capriciously in denying the Transport Region states’ 176A petition.

II. Ozone Pollution Causes Adverse Health Effects in all Segments of the Population and Damages the Environment Highlighting the Urgency of Timely Attainment of the Ozone NAAQS.

a. EPA’s denial of the Ozone Transport Region states’ 176A petition has serious detrimental consequences for public health.

Attainment of the ozone ambient air quality standard is not an academic exercise. Exposure to ozone—a product of the reaction between NO_x and VOCs in the presence of sunlight—is associated with a wide range of significant adverse human health impacts. Severe physiological effects result from both single incidents of ozone exposure at high concentrations and from repeat exposure over

³ Eight states signed the original petition, and Pennsylvania was added as a state petitioner on December 17, 2013. *See* EPA Final Denial, 82 Fed. Reg. 51238 (Nov. 3, 2017).

a more extended period of time even at relatively low concentrations. These effects, which can occur in otherwise healthy adults, include premature mortality, respiratory and cardiovascular morbidity, and impacts on the central nervous system and development. Controlled human exposure, epidemiological, and toxicological studies demonstrate these impacts.⁴ Though the consequences of short-term (acute) ozone exposure are better understood, there is a growing scientific consensus that the long-lasting impacts of chronic ozone exposure are more severe and less reversible.

It is undisputed that exposure to ozone both in the short term and long term causes or exacerbates respiratory impacts such as breathing discomfort (coughing, wheezing, and shortness of breath, for example), decreased lung function and capacity, and lung inflammation.⁵ Acute ozone exposure initiates an inflammatory response throughout the respiratory tract that can persist for eighteen to twenty-four hours following exposure.⁶ Inflammation may then evolve into a chronic inflammatory state, and repeat episodes tend to alter the structure and function of tissues, leading to scarring or stiffening of the lung tissue.⁷ The inflammation also

⁴ See generally U.S. EPA, Integrated Science Assessment for Ozone and Related Photochemical Oxidants, EPA-600/R-10/076F (2013) [hereinafter ISA] (providing a review, synthesis, and evaluation of policy-relevant science for EPA's review of the NAAQS).

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

affects the body's defense response to inhaled microorganisms and increases the likelihood of a reaction to allergens or toxins. In short, ozone exposure harms lung functioning.

A natural consequence of harm to lung functioning is the exacerbation—or even causation—of asthma, a life-long and incurable disease. Asthma ranges in severity, but even mild cases include difficulty breathing, coughing, and wheezing, and severe cases can lead to life-threatening asthma attacks. Individuals with asthma are at a greater risk of experiencing ozone-related health effects, but studies show that with each 10 parts per billion (“ppb”) increase in annual mean ozone or 8-hour average, the more likely it is that a healthy adult will *develop* asthma.⁸ The numbers illustrate a link between ozone and asthma: following ozone exposure, there are documented increases in respiratory asthma medication use and asthma-related hospital and emergency room visits.⁹ Hikers, bikers, walkers, runners, and those who play outdoor sports are also at risk because their increased breathing rate exposes them to higher doses of ozone.

Ozone effects are not limited to the lungs. Controlled human exposure studies document negative cardiovascular effects in response to short-term ozone

⁸ *Id.* at 7-3 (citing W.F. McDonnell et al., *Long-term Ambient Ozone Concentration and the Incidence of Asthma in Nonsmoking Adults: The AHSMOG Study*, 80 *Envtl. Res.* 110 (1999); J. Greer et al., *Asthma Related to Occupational and Ambient Air Pollutants in Nonsmokers*, 35 *J. Occupational & Env'tl. Med.* 909 (1993)).

⁹ *Id.* at 6-120.

exposure, including changes in heart rate variability and blood markers of systemic inflammation and oxidative stress.¹⁰ Exposure has also been associated with an increased risk of heart attacks, coronary atherosclerosis (hardening of the arteries), stroke, and heart disease, even at low ozone concentrations. Chronic exposure puts children at risk for cardiovascular disease later in life, and young adults who grow up in areas with higher ozone concentrations tend towards early hardening of the arteries, which can lead to death.¹¹

Children have a heightened vulnerability to ozone pollution stemming from their developmental stage and their behavior. Ongoing lung growth and development, higher relative ventilation rates, and high levels of outdoor activity mean that children face unique health risks from air pollution exposure.¹² Asthma is the third leading cause of hospitalizations for children under the age of fifteen.¹³ Children cannot be treated akin to adults. Children's respiratory systems are

¹⁰ ISA, *supra* note 4, at 5-85, 5-87 & 5-92 (citing R.B. Devlin et al., *Controlled Exposure of Healthy Young Volunteers to Ozone Causes Cardiovascular Effects*, 126 *Circulation* 104 (2012); H. Gong et al., *Cardiovascular Effects of Ozone Exposure in Human Volunteers*, 158 *Am. J. Respiratory Critical Care Med.* 538 (1998); L. Liu, *A Comparison of Biomarkers of Ozone Exposure in Human Plasma, Nasal Lavage, and Sputum*, 11 *Inhalation Toxicology* 657 (1999)).

¹¹ C.V. Breton et al., *Childhood Air Pollutant Exposure and Carotid Artery Intima-Media Thickness in Young Adults*, 126 *Circulation* 1614 (2012); S.D. Adar, *Childhood Exposures to Ozone: The Fast Track to Cardiovascular Disease?*, 126 *Circulation* 1570 (2012).

¹² American Academy of Pediatrics Committee on Environmental Health, *Ambient Air Pollution: Health Hazards to Children*, 114 *Pediatrics* 1699 (2004).

¹³ Andrea Bankoski et al., *Asthma in Maryland 2011* at 13 (2011).

undergoing critical development that places them at greater risk for ozone-induced damage.¹⁴ Most of a child's lungs will develop after birth until adolescence. As described by the EPA, "[c]hildren are considered to be at greater risk from [ozone] exposure because their respiratory systems undergo lung growth until about 18-20 years of age and are therefore thought to be intrinsically more at risk for [ozone]-induced damage."¹⁵ Children's immune systems are also still developing, making them more susceptible to infection and respiratory illness than adults.¹⁶

Importantly, children are "mouth-breathers," which means they take in higher doses of air pollutants per breath. In addition, children are more likely to be active outdoors, increasing their vulnerability to the effects of ozone.¹⁷ High intensity activities increase ventilation rates and pollution inhalation.¹⁸ Participation in some sports can result in a child drawing up to seventeen times the

¹⁴ See e.g., T.F. Bateson & J. Schwartz, *Children's Response to Air Pollutants*, 71 J. Toxicology Env'tl. Health 238 (2007); C.G. Plopper & M.V. Fanucchi, *Do Urban Environmental Pollutants Exacerbate Childhood Lung Diseases?*, 108 Env'tl. Health Persp. A252 (2000); L. Trasande & G.D. Thurston, *The Role of Air Pollution in Asthma and Other Pediatric Morbidities*, 115 J. Allergy & Clinical Immunology 689 (2005).

¹⁵ U.S. EPA, *Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards* (EPA-452/R-14-006) 3-40 (2014) [hereinafter Policy Assessment].

¹⁶ R.R. Dietert et al., *Workshop to Identify Critical Windows of Exposure for Children's Health: Immune and Respiratory Systems Workgroup Summary*, 108 Env'tl. Health Persp. 483 (2000); Bateson & Schwartz, *supra* note 14.

¹⁷ U.S. EPA, *Health Risk and Exposure Assessment for Ozone* (EPA-452/R-14-004a) 2-18 (2011) [hereinafter HREA].

¹⁸ See ISA, *supra* note 4, at 4-31.

“normal” amount of air into the lungs, making young athletes more likely to develop asthma.¹⁹ Because of the time they spend playing outside, engaging in sports, and participating in outdoor school activities, children face an increased risk of suffering adverse ozone-related health impacts. Children also tend to spend more time outdoors during midday and afternoons when pollutant levels are highest. EPA found that “the percentages of children estimated to experience exposures of concern is considerably larger than the percentages estimated for adult populations (i.e., approximately *3-fold larger across urban study areas*).”²⁰ Playing outside and participating in sports and activities are important parts of growing up and encouraging healthy, active lifestyles. At today’s current ozone levels, children are being forced indoors to avoid damage to their sensitive, still-developing bodies.

Studies have demonstrated these amplified risks to children. Children at summer camp—where a great deal of time is spent being active outdoors—consistently show diminished lung function associated with increasing levels of ozone.²¹ At a summer camp in New Jersey, children ages eight to fifteen showed

¹⁹ *Id.* at 7-102 (citing R. McConnell et al., *Asthma in Exercising Children Exposed to Ozone: A Cohort Study*, 359 *Lancet* 386 (2002)).

²⁰ 79 Fed. Reg. 75,285 (Dec.17, 2014).

²¹ *See ISA, supra* note 4, at 6-281, 6-294 (citing P.L. Kinney et al., *The Effects of Ambient Ozone on Lung Function in Children: A Reanalysis of Six Summer Camp Studies*, 104 *Envtl. Health Persp.* 170 (1996); G.D. Thurston et al., *Summertime*

decreases in lung function connected with ozone exposure.²² A study in California showed that healthy, active children playing three or more sports and growing up in communities with higher ambient ozone levels (ranging from 55.8 to 69 ppb) were over three times more likely to develop asthma than their peers in communities with lower ozone levels.²³ Another California study found that a five ppb increase in annual average eight-hour ozone concentrations was positively associated with children having asthma and asthma attacks.²⁴ In the face of this evidence, it is clear that children are paying for EPA's inadequate action on ozone pollution.

b. Ozone pollution disproportionately impacts people of color, raising important environmental justice concerns.

Low-income communities and communities of color are often disproportionately exposed to higher levels of ozone air pollution, to more types of elevated air pollution, and to more chronic air pollution. These communities are more likely to live or work near pollution sources and to have higher pollution burdens from mobile and stationary sources, which are exacerbated by factors like

Haze Air Pollution and Children with Asthma, 155 Am. J. Respiratory & Critical Care Med. 654 (1997)).

²² ISA, *supra* note 4, at 6-292 (citing D.M. Spektor et al., *Effects of Ambient Ozone on Respiratory Function in Active, Normal Children*, 137 Am. Rev. Respiratory Disease 313 (1988)).

²³ McConnell, *supra* note 19.

²⁴ L.J. Akinbami et al., *The Association Between Childhood Asthma Prevalence and Monitored Air Pollutants in Metropolitan Areas, United States, 2001-2004*, 110 Env'tl. Res. 294 (2010).

lack of health care access and housing market dynamics.²⁵ Epidemiological studies show that socioeconomic status is associated with higher risks of ozone-related health outcomes.²⁶ EPA has stated that “most studies of individuals have reported that individuals with low SES [socioeconomic status] and those living in neighborhoods with low SES are more at risk for [ozone] -related health effects, resulting in increased risk of respiratory hospital admissions and ED [emergency department] visits.”²⁷ These higher pollution burdens are associated with health outcomes such as respiratory and cardiovascular disease, low birth weight, and premature death.²⁸ In particular, African-Americans may be at higher risk of early death from ozone pollution than the general population.²⁹ A study in 2008 examined ninety-eight urban communities in the U.S. and reported that the risk

²⁵ Morello-Frosch et al., *Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy*, 30 *Health Affairs* 879 (2011).

²⁶ J.T. Lee et al., *Effect of Air Pollution on Asthma-Related Hospital Admissions for Children by Socioeconomic Status Associated with Area of Residence*, 61 *Archives Envtl. Occupational Health* 123 (2006); S. Cakmak et al., *The Risk of Dying on Days of Higher Air Pollution Among the Socially Disadvantaged Elderly*, 111 *Envtl. Res.* 388 (2011); M. Pastor et al., *Air Pollution and Environmental Justice: Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability into Regulatory Decision-Making* (2010), <https://www.arb.ca.gov/research/apr/past/04-308.pdf>.

²⁷ ISA, *supra* note 4.

²⁸ *State of the Air: Disparities in the Impact of Air Pollution*, American Lung Association (2013), http://www.stateoftheair.org/2013/health-risks/health-risks-disparities.html#_ftn1.

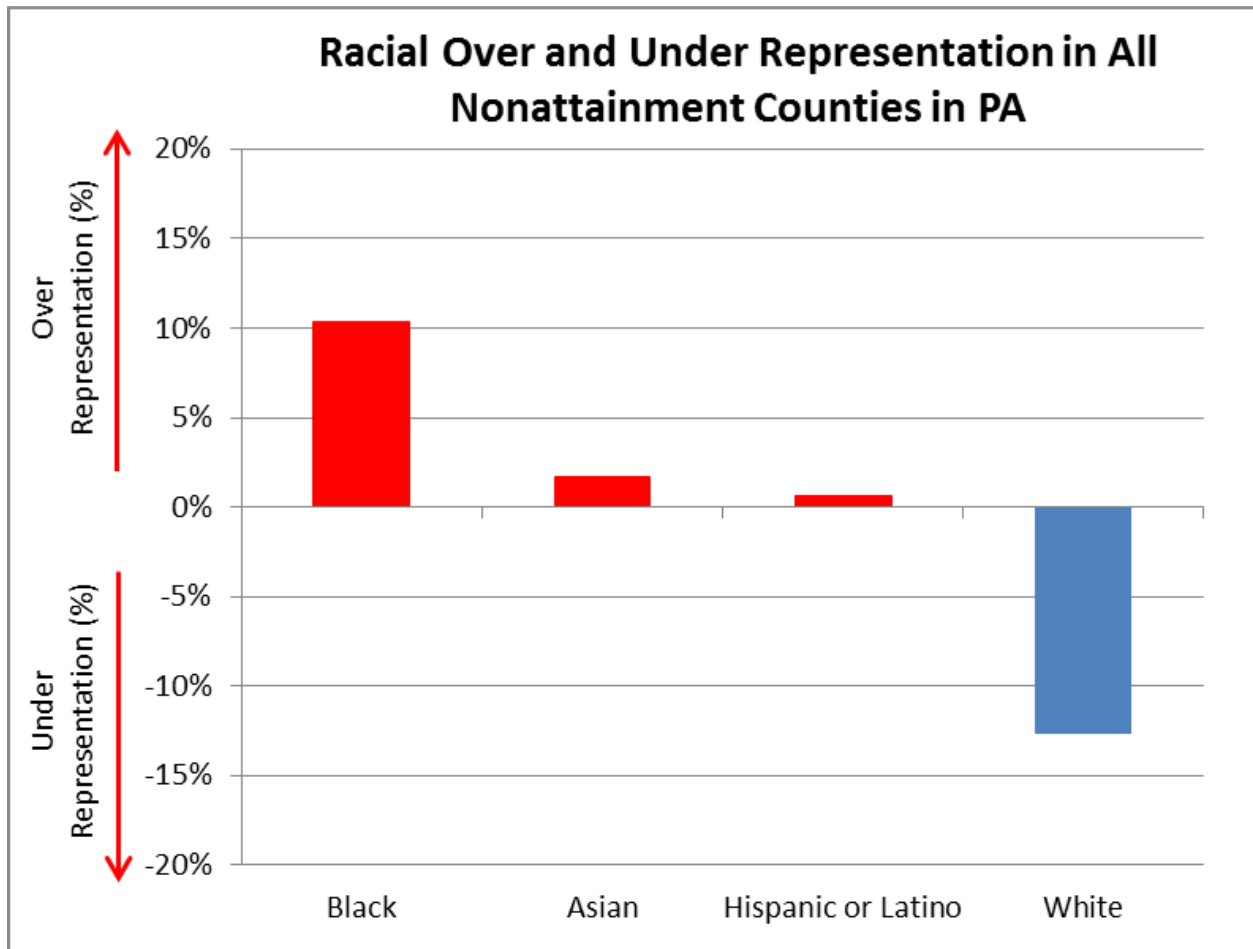
²⁹ ISA, *supra* note 4, at 6-262 (citing M.L. Bell & F. Dominici, *Effect Modification by Community Characteristics on the Short-Term Effects of Ozone Exposure and Mortality in 98 US Communities*, 167 *Am. J. Epidemiology* 986 (2008)).

between ozone and mortality was greatest in areas with high unemployment rates, a higher percentage of African-American residents, higher public transportation use, and lower availability of air conditioning.³⁰

Almost every state has an overrepresentation problem. People of color are overrepresented in areas that fail to meet the 2008 ozone standards compared to average state-wide racial demographics, while white, non-Hispanics (“whites”) are almost always underrepresented in those areas.³¹ In other words, as air quality worsens, representation of African-Americans and other minorities in the population increases while representation of whites in the population decreases. Figure 1, depicting 2011-2013 ozone design value data from Pennsylvania, a Transport Region state, is illustrative of the stark differences in representation:

³⁰ *Id.*

³¹ See graphs in the Comments of American Lung Association et al. on EPA’s Proposed Revisions to the National Ambient Air Quality Standards for Ozone 242-53 (2015).

Figure 1

Consequently, people of color and low-income communities face asthma and its impacts at startlingly higher rates than their white counterparts. In general, the asthma prevalence rate for African-Americans is around twelve percent compared to eight percent for whites. When comparing hospitalization rates, emergency department visit rates, and mortality rates, however, African-Americans typically show disproportionate impacts of 200 to 400 percent compared to

whites.³² In Baltimore City, asthma-related emergency room visits were 6.5 times higher among African-American residents than among white residents (309.3 versus 47.9 per 10,000 residents).³³ Hospitalization rates were approximately 2.9 times higher (59.4 versus 20.6 per 10,000 residents).³⁴ As shown, African-Americans are more likely to suffer from the most severe, life-threatening asthma-related complications.

Minority groups other than African-Americans are also disproportionately affected by asthma. Nationally, Puerto Ricans and Native Americans have a much higher current asthma prevalence rate than even African-Americans, at 16.7 percent and 14.3 percent respectively.³⁵ Nationally, the mortality rate for Puerto

³² Nepaul, A.N. et al., *The Burden of Asthma in Connecticut 2012 Surveillance Report* (2012), <http://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/hems/asthma/pdf/Fullreportwithcoverpdf.pdf?la=en>; North Carolina Dept. of Health and Human Services, *The Burden of Asthma in North Carolina* (2010), <http://www.asthma.ncdhhs.gov/docs/TheBurdenOfAsthmaInNorthCarolina-2010.pdf>; Indiana State Dept. of Health, *Asthma Fact Sheet* (2013), [http://www.in.gov/isdh/files/ISDH_FactSheet_Asthma_Nov2013_FINAL\(1\).pdf](http://www.in.gov/isdh/files/ISDH_FactSheet_Asthma_Nov2013_FINAL(1).pdf); Wisconsin Dept. of Health, *Burden of Asthma in Wisconsin* (2013) <https://www.dhs.wisconsin.gov/publications/p4/p45055-2013.pdf>.

³³ Maryland Asthma Control Program, *Jurisdiction Profile: Asthma in Baltimore City 2* (2011).

³⁴ *Id.* at 3.

³⁵ The Office of Minority Health, *Asthma and American Indians/Alaskan Natives*, HHS.gov (2017), <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=30>; The Office of Minority Health, *Asthma and Hispanic Americans*, HHS.gov (2017), <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=60>.

Ricans is four times higher than the mortality rate for whites, and similar trends exist at the state level for Native Americans.³⁶

Though ozone exposure and its effects have far-reaching range across all segments of the population—healthy adults and children alike—the worst effects tend to fall on communities with fewer resources to combat the symptoms associated with ozone-related health effects like asthma. Transported ozone will inevitably end up hitting environmental justice communities the hardest.

c. Ozone and its precursor pollutants negatively impact vegetation and water quality, including the Chesapeake Bay watershed.

In addition to harming human health, ozone pollution is damaging to ecosystems. Ozone damages the leaves of plants and trees and reduces agricultural yields for numerous common and economically valuable plant and tree species.³⁷

“In terms of forest productivity and ecosystem diversity, ozone may be the pollutant with the greatest potential for region-scale forest impacts.”³⁸ NOx emissions, which are transported from upwind to downwind states and contribute to ozone formation, also cause ecological harm when they fall to the earth’s

³⁶ *Id.*

³⁷ EPA, *Air Quality Criteria for Ozone and Related Photochemical Oxidants*, EPA 600/R-05/004aF-cF, at 9-1 (2006).

³⁸ EPA, *Regulatory Impact Analysis of the Final Revisions to the Nat’l Ambient Air Quality Standards for Ground-Level Ozone*, EPA-452/R-15-007, at 7-3 (2015), available at <https://www3.epa.gov/ttnecas1/docs/20151001ria.pdf>.

surface as nitrogen deposition.³⁹ Excess nitrogen deposited to surface waters can cause acidification impacts and harmful algae blooms, which block sunlight from reaching underwater grasses and, when decomposing, suck oxygen from the water and create dead zones where fish and other aquatic species cannot survive.⁴⁰ EPA identified these and other negative ecological impacts when it updated the ozone NAAQS in 2015:

Even though the primary standards are designed to protect against adverse effects to human health, the emissions reductions would have welfare co-benefits in addition to the direct human health benefits . . . [including] reduced vegetation effects resulting from ozone exposure, reduced ecological effects from particulate matter deposition and from nitrogen emissions, reduced climate effects, and changes in visibility.⁴¹

One iconic example of how interstate transport of ozone precursor pollutants can impact an ecosystem is the 64,000-square-mile Chesapeake Bay watershed, approximately 60 percent of which lies within the Transport Region.⁴² In 2010, in response to pervasive dead zones caused by excessive sediment, nitrogen, and phosphorus pollution, EPA established a federal-state clean-up plan called the

³⁹ *See id.* at 7-2.

⁴⁰ *Id.* at 7-6.

⁴¹ EPA, *Regulatory Impact Analysis of the Final Revisions to the Nat'l Ambient Air Quality Standards for Ground-Level Ozone*, EPA-452/R-15-007, at 1-13 (2015).

⁴² EPA Chesapeake Bay Program, *Watershed*, <https://www.chesapeakebay.net/discover/watershed>; *see also*, OTC, *What is the Ozone Transport Commission?*, <https://otcair.org/about.asp> (last visited May 22, 2018) (showing a map of Transport Region states).

Chesapeake Bay Total Maximum Daily Load (“Bay TMDL”). *See* EPA, Chesapeake Bay TMDL (Dec. 2010), *available at* <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>. To develop the Bay TMDL, EPA calculated the maximum amount of sediment, nitrogen, and phosphorus the Chesapeake Bay could receive and still meet water quality standards. *See id.* at ES-1. These overall pollutant loads were then allocated to each of the seven Bay jurisdictions. *Id.* Each jurisdiction is responsible for reducing its amount of pollutant contribution to meet the TMDL goals. *Id.*

At the time the Bay TMDL was established, EPA found that atmospheric deposition contributed about one-third of the total nitrogen loads delivered to the Chesapeake Bay. *Id.* at 4-33. Fifty percent of that atmospheric deposition of nitrogen to the Bay watershed comes from areas outside of the Bay watershed, including all or part of eight (of the nine) states that the 176A Petition asks to be added to the Transport Region. *See id.* at 4-34. EPA set a cap of 15.7 million pounds of atmospheric deposition of nitrogen per year directly to the Bay and its tidal tributaries, and allocated responsibility for reductions to meet this cap to EPA. *Id.* at 8-33.⁴³ EPA “ensure[d] achievement of this allocation” based on state and

⁴³ *See also*, Bay TMDL Appendix L, at L-23 (“the nitrogen deposition directly to the Bay’s tidal surface waters is a direct loading with no land-based management controls and, therefore, needs to be linked directly back to the air sources and air controls as EPA’s allocation of atmospheric nitrogen deposition.”).

federal compliance with and implementation of Clean Air Act regulations, including efforts to attain the ozone NAAQS. Bay TMDL at 6-28.

As the federal partner to the Bay TMDL and signatory to the Chesapeake Bay Watershed Agreements since 1983⁴⁴, EPA has an obligation to pursue reductions of atmospheric nitrogen loads to the Bay watershed. The 176A Petition provides EPA with the opportunity to add nine states to the Transport Region to reduce emissions, which will lead to co-benefits for the Bay watershed and the natural resources and ecosystems in all downwind states.

EPA's arbitrary denial of Petitioners' 176A petition will delay critical public health and environmental protections.

III. It is Arbitrary and Capricious for EPA to Deny the 176A Petition in Light of EPA's Actions to Date with Respect to Section 126 Petitions and 110(a)(2)(D) Good Neighbor SIPs.

a. Legal Standard

See Standard of Review, Petitioners' Brief at 22-23.

b. EPA cannot rationally rely on the availability of section 126 as a basis for denial of the 176A petition.

⁴⁴ *See* Chesapeake Bay Watershed Agreement (2014), available at https://www.chesapeakebay.net/channel_files/24334/2014_chesapeake_watershed_agreement.pdf (recommitting the Chesapeake Bay Program partners, including EPA, to the goals of Chesapeake Bay watershed restoration).

EPA's suggestion⁴⁵ that section 126 provides a better tool for Transport Region states to address pollution from upwind sources is belied by EPA's actions to date on states' section 126 petitions. Since July 2016, Transport Region states have made a concerted effort to use section 126 to help ameliorate interstate transport of ozone from some of the most polluting upwind sources. Seven different petitions were filed by four states targeting hundreds of upwind sources.⁴⁶ To date, EPA has cataloged the petitions on its website, granted itself six-month extensions of the statutory sixty-day response deadline, and, with the exception of Connecticut's petition which it was under court order to respond to and denied, has failed to respond by the extended deadlines.⁴⁷

- i. In denying Connecticut's section 126 petition, EPA has erected novel obstacles to the use of this tool that significantly limit the availability of relief under this section and highlight the arbitrariness of EPA's denial of the 176A petition.*

⁴⁵ EPA Final Denial, 82 Fed. Reg. 51238.

⁴⁶ *Ozone National Ambient Air Quality Standards (NAAQS) Section 126 Petitions*, EPA.gov (2018), <https://www.epa.gov/ozone-pollution/ozone-national-ambient-air-quality-standards-naaqs-section-126-petitions>.

⁴⁷ See 81 Fed. Reg. 57,461 (Aug. 23, 2016) (granting six-month extension for responding to Delaware's July 7, 2016 petition); 81 Fed. Reg. 66189 (Sept. 27, 2016) (granting six-month extension for responding to Delaware's August 8, 2016 petition); 81 Fed. Reg. 95,884 (Dec. 29, 2016) (granting six-month extension for responding to Delaware's November 10, 2016 petition); 82 Fed. Reg. 22 (Jan. 3, 2017) (granting six-month extension for responding to Maryland's November 16, 2016 petition); 82 Fed. Reg. 7695 (Jan. 23, 2017) (granting six-month extension for responding to Delaware's November 28, 2016 petition).

EPA's recent court-ordered response to Connecticut's 126 petition articulates a novel and highly restrictive interpretation of the requirements for a section 126 petition that makes relief under section 126 largely unavailable and EPA's suggestion that states can rely on section 126 in lieu of an expansion of the Transport Region arbitrary and capricious.

EPA's response to Connecticut's petition restricts the ability of states to seek relief under section 126 in at least three novel ways, the net effect of which is to subsume section 126 into existing good neighbor SIP obligations and effectively eliminate section 126 as an independent tool for downwind states.

First, EPA declares that a finding of significant contribution to nonattainment and/or interference with maintenance of the 2008 ozone NAAQS is available only if an upwind state's total anthropogenic emissions contribute, *on average over the course of the entire ozone season*, at least one percent of the NAAQS to the downwind state, regardless of the impact of the individual source or sources on high ozone days. *See* EPA Response to June 1, 2016 Clean Air Act Section 126(b) Petition from Connecticut, 83 Fed. Reg. 16,071/1 (Apr. 13, 2018). EPA thus replaces the significant contribution inquiry in the plain language of section 126 with EPA's interpretation of states' broader good neighbor obligation under section 110(a)(2)(D)(i)(I). A source could contribute ten, twenty, or even fifty percent of the ozone on a high ozone day, but unless the upwind state's

average contribution to the downwind state was greater than one percent, EPA would not consider the source a significant contributor. This limitation is particularly noteworthy because EPA determines attainment based on a three-year average of fourth-worst ozone days at each ozone monitor, disregarding air quality on all other days of the year. 40 C.F.R. § 50.19(b). Consequently, restricting the availability of relief under section 126 to sources in *states* with an average contribution of one percent of the NAAQS over the course of the entire ozone season dramatically reduces the scope of this tool.

Second and relatedly, if a state already has a SIP that the EPA approved as adequate to meet the requirements of Clean Air Act section 110(a)(2)(D)(i)(I), then EPA would not find that a source in that state was emitting in violation of the prohibition of section 110(a)(2)(D)(i)(I) absent new information demonstrating the SIP is now insufficient to address the prohibition. 83 Fed. Reg. 16,071/1. Again, because EPA considers only ozone season average contributions in evaluating the adequacy of SIPs under 110(a)(2)(D)(i)(I), imposing this limitation on section 126 petitions precludes relief where sources contribute significantly on peak ozone days but not at other times.

Third, EPA declares that a finding of significant contribution under section 126 is only available if the petitioning state demonstrates that there are “highly cost-effective controls” available. 83 Fed. Reg. 16,070/3. This requirement, which

lacks any textual foundation in the Act, further circumscribes the availability of relief under section 126. Indeed, even if a source were located in an upwind state that contributed significantly and was, itself, responsible for a significant fraction of the ozone in the downwind state, unless the petitioning state demonstrated that the source's emissions could be reduced in a highly cost-effective manner EPA would deny relief under section 126.

Taken together, EPA's novel limitations on the availability of relief under section 126 severely limits its utility to downwind states and render any suggestion that Transport Region states can rely on section 126 as an alternative to expanding the Transport Region arbitrary and capricious.

IV. EPA's Denial of the 176A Petition is Inherently Unfair to Downwind States' Efforts to Protect Their Air Quality and the Health of the Chesapeake Bay Watershed.

Even before Congress created the Transport Region, Courts recognized the inequity of interstate air pollution. *See, e.g., Connecticut v. EPA*, 696 F.2d 147, 151 (2d Cir. 1982) (“[n]o aspect of [the Clean Air Act's structure] is more crucial than the provisions which guarantee that air pollution generated in one state does not disrupt another state's plans for complying with the national standards.”). Absent EPA action to impose control requirements on upwind states, upwind sources will continue to be unfairly advantaged by the lack of control

requirements, and pollution from these under-controlled sources will unjustly burden residents in the Transport Region.

Petitioners' Brief describes the economic disparity that exists between upwind states and downwind states, the latter of which are burdened with greater cost-per-ton control requirements. *See* Petitioners' Brief at 63–66. Downwind states that do not attain the health-based ozone NAAQS are also saddled with public health and ecological costs associated with the actual and significant impacts of ozone pollution. *See infra* at Section II (discussing health and environmental impacts of ozone pollution). A 2017 paper from the Ozone Transport Commission estimates an economic benefit to the Transport Region in the range of \$4-10 billion per year in reduced health impacts if the Transport Region attained the 2015 ozone NAAQS.⁴⁸ The Commission's paper highlights the health benefits that are lost by downwind states due to failure to attain the ozone NAAQS. *See* Petitioners' Brief at 19 (citing EPA noting that “interstate transport would impair the ability of states in the Transport Region to attain the new, more stringent 2015 ozone NAAQS.”). States in the Transport Region are unfairly

⁴⁸ Ozone Transport Comm'n, *Analysis of the Potential Health Impacts of Reducing Ozone Levels in the OTR Using BenMAP* (Oct. 12, 2017), available at <https://otcair.org/upload/Documents/Reports/BenMap%20Rollback%20Analysis%20171012%20Final.pdf>; *see also*, Comment Letter from Raul Pino, Commissioner, Dep't of Public Health, State of Connecticut, EPA-HQ-OAR-2016-0596-0041 (Mar. 14, 2017), available at www.regulations.gov (in 2014, Connecticut alone incurred over \$135 million in acute care charges due to asthma impacts).

deprived of these health benefits when pollutants transported from upwind states significantly contribute to downwind ozone levels.

In addition to efforts to attain the ozone NAAQS within the statutory timelines, the seven downwind jurisdictions within the Chesapeake Bay watershed are also responsible for meeting pollution reduction goals under the Chesapeake Bay TMDL. *See* Bay TMDL at ES-1. Recognizing the benefits of a restored Chesapeake Bay—including an economic value of up to \$130 billion per year⁴⁹—these jurisdictions, their local partners, and EPA’s Chesapeake Bay Program invest significant resources to implement practices that reduce nitrogen, phosphorus, and sediment loads to the Bay watershed.⁵⁰ EPA, as the federal partner to the Bay TMDL, has the authority and obligation to ensure that atmospheric deposition of NOx from upwind states—which accounts for fifty percent of the atmospheric deposition of nitrogen to the Bay watershed⁵¹—does not unfairly interfere with Bay jurisdictions’ efforts to achieve the goals of the Bay TMDL.

Despite decades of efforts, air modeling shows that upwind states have failed to adequately reduce emissions from sources within their borders and

⁴⁹ CBF, *The Economic Benefits of Cleaning Up the Chesapeake* 5 (Oct. 2014), available at <http://www.cbf.org/document-library/cbf-reports/the-economic-benefits-of-cleaning-up-the-chesapeake.pdf>.

⁵⁰ *See, e.g.*, Chesapeake Bay Program, *Chesapeake Progress: Funding*, <http://www.chesapeakeprogress.com/funding> (last visited May 21, 2018) (noting the watershed jurisdictions invested an estimated \$1.41 billion in watershed restoration programs in 2017).

⁵¹ *See* Bay TMDL at 4-34.

downwind states are thus unfairly burdened with out-of-state pollution impacts. *See* Petitioners' Brief at 36. Further highlighting the need for timely EPA action to reduce ozone precursors, a recent study in the Proceedings of the National Academy of Sciences found that NO_x emissions in the U.S. between 2011 and 2015 have not been decreasing as quickly as EPA previously predicted.⁵² EPA's decision to deny the 176A Petition is arbitrary and capricious and completely ignores the significant benefits that would be achieved by reducing the interstate transport of ozone and its precursor pollutants, while more equitably and adequately protecting human health and ecosystems in all downwind states.

CONCLUSION

For the reasons above, the 176A petition should be granted and EPA's denial of the petition vacated.

Respectfully submitted,

Dated May 22, 2018

/s/ Joshua Berman⁵³
JOSHUA BERMAN
Senior Attorney
ANDREA MARSHALL
Legal Fellow

⁵² Zhe Jiang et al., *Unexpected Slowdown of US Pollutant Emission Reduction in the Past Decade*, PNAS (Apr. 30, 2018),

<http://www.pnas.org/content/early/2018/04/24/1801191115>.

⁵³ Counsel for the Sierra Club represents that the Chesapeake Bay Foundation, whose signature block is below, consents to this filing.

Sierra Club
50 F St. NW, 8th Floor
Washington, DC 20001
(202) 650-6062 telephone
(202) 547-6009 fax
josh.berman@sierraclub.org
Counsel for Amicus Curiae Sierra Club

/s/ Ariel Solaski
ARIEL SOLASKI
Staff Litigation Attorney
JON A. MUELLER
Vice President for Litigation
Chesapeake Bay Foundation, Inc.
6 Herndon Avenue
Annapolis, MD 21403
(443) 482-2171 telephone
(410) 268-6687 fax
asolaski@cbf.org
*Counsel for Amicus Curiae Chesapeake Bay
Foundation, Inc.*

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMIT

Counsel hereby certifies that in compliance with the type-volume limitations of Fed. R. App. P. 29(a)(5) and this Court's briefing format order dated April 9, 2018 (Doc. No. 1725690), the foregoing *amicus curiae* brief contains 6,471 words, exclusive of the sections excluded by Fed. R. App. P. 32(f) and D.C. Circuit Rule 32(e)(1).

This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type-style requirements of Fed. R. App. P. 32(a)(6) because this document has been prepared in proportionally spaced 14-point Times New Roman typeface.

/s/ Joshua Berman
JOSHUA BERMAN
Senior Attorney
Sierra Club
50 F St. NW, 8th Floor
Washington, DC 20001
(202) 650-6062 telephone
josh.berman@sierraclub.org

CERTIFICATE OF SERVICE

I certify that on May 22, 2018, the foregoing *Amicus Curiae* Brief of Chesapeake Bay Foundation, Inc. and Sierra Club was electronically filed with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit through the Court's CM/ECF system, which effected service upon counsel of record through the Court's system.

/s/ Joshua Berman
JOSHUA BERMAN
Senior Attorney
Sierra Club
50 F St. NW, 8th Floor
Washington, DC 20001
(202) 650-6062 telephone
josh.berman@sierraclub.org