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August 9, 2018

The Honorable Andrew Wheeler, Acting Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20004
Submitted via Regulations.gov

Re: Comments on the Primary National Ambient Air Quality Standard for
Sulfur Oxides, Docket No. EPA-HQ-OAR-2013-0566

Dear Acting Administrator Wheeler:

The American Lung Association appreciates the opportunity to comment on the proposed primary National Ambient Air Quality Standard (NAAQS) for sulfur oxides. This year marks the 114th anniversary of the Lung Association, allowing us to continue our mission to save lives through the prevention of lung disease and the promotion of lung health. Following our review of the evidence, the American Lung Association urges the U.S. Environmental Protection Agency to reconsider this proposal for retaining the existing standard and, instead, to adopt a one-hour standard of 50 ppb based on the 99th percentile.

Sulfur dioxide (SO₂) remains a serious threat to human health. As EPA documented in the Integrated Science Assessment (ISA), the research reviewed in the 2008 ISA continues to provide convincing evidence of the harm to lung health.

Under Section 109 of the Clean Air Act, the primary NAAQS must be set at a level requisite to protect the public health with an adequate margin of safety.¹ Any standards that EPA adopts must be adequate to protect public health and provide an adequate margin of safety, to prevent any known or anticipated health-related effects from polluted air. The Clean Air Act sets significant limits on the discretion granted to EPA in selecting a level for the NAAQS. In exercising its judgment, EPA must err on the side of protecting public health and may not consider cost or feasibility in connection with establishing the NAAQS. The D.C. Circuit summed up EPA's mandate two decades ago:

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“Based on these comprehensive [air quality] criteria and taking account of the ‘preventative’ and ‘precautionary’ nature of the act, the Administrator must then decide what margin of safety will protect the public health from the pollutant’s adverse effects – not just known adverse effects, but those of scientific uncertainty or that research has not yet ‘uncovered.’ Then, and without reference to cost or technological feasibility, the Administrator must promulgate national standards that limit emissions sufficiently to establish that margin of safety.”²

In keeping with the precautionary and preventative nature of the NAAQS, EPA must set a standard that protects against health effects that go beyond those impacts that this analysis finds causally established by science. As the D.C. Circuit noted in another case, limited data cannot be an excuse for failing to establish the level at which there is an absence of adverse effect. To the contrary:

“Congress’ directive to the Administrator to allow an ‘adequate margin of safety’ alone plainly refutes any suggestion that the Administrator is only authorized to set primary air quality standards which are designed to protect against health effects that are known to be clearly harmful.”³

In fact, the proposal to maintain the current standard relies primarily on these “health effects that are shown to be clearly harmful” and allows little room for protection from the effects that also had compelling evidence of likely harm on vulnerable populations.

In the 2017 ISA, EPA concluded, for example, that the short-term exposures had a wider risk to health, adding powerful evidence for a 24-hour standard in addition to the 1-hour standard. Some of that came from the growing evidence from multi-city studies that linked short-term exposure to SO₂ with premature death from respiratory causes, adding even more concern about this pollutant. The detailed exploration in the multi-city studies in China and other Asian cities that controlled for the presence of other pollutants provided evidence that these deaths came from exposure to SO₂.⁴

Several studies found evidence that the children exposed to SO₂ over a long period (greater than one month) had a higher risk of developing new onset asthma, particularly allergic asthma. Two multi-city studies examined the impact on small children in the first three years of life. and found evidence that linked SO₂ to asthma incidence after the first three years of life.⁵

Despite all these additional studies and others EPA cited, EPA has recommended only a 1-hour standard that rests on the human exposure studies available in the prior review. Their importance is understandable: clinical trial testing eliminates the possible confounding of other pollutants in real world exposures. But they remain seriously limited because of the levels of SO₂ used in the studies and the age of the participants. None of those studies had examined exposures below 100 ppb, nor did any –understandably–include young children with asthma, a group that EPA identifies as likely at higher risk than adults with asthma. Nor did any include adults over age

75, a group also found, according to new research, to be at higher risk. Nor did these studies examine the impact of multiple exposures in the same day, a likely event for those living downwind of a major power plant. The law requires EPA to set standards that protect the health of everyone from the very young to the elderly with an adequate margin of safety. The current standard fails to provide that margin.

Given the proposal to truncate the upcoming reviews of the ozone and particulate matter NAAQS, the Lung Association commends EPA for its thorough review of the science, risk exposure and policy implications for a NAAQS for sulfur oxides. EPA staff followed the well-designed path to complete this review with the assistance of the independent expert advisors on the Clean Air Scientific Advisory Committee. This is a process which must not be cut short.

- First, EPA staff reviewed the all the available research, including historic clinical trials as well as new published research, in the Integrated Science Assessment with two external review drafts taking comments on both from the public, including the Lung Association.
- Next, EPA staff completed a risk and exposure assessment, followed by a policy assessment: all thorough review documents that identified issues and created the process for a full and open discussion on all the available information.

The American public benefits from these full, detailed, scientific reviews to determine the standards that are—as the Clean Air Act states-- “requisite to protect public health” with an “adequate margin of safety.” The reviews provide aggregated, vetted, debated, and transparent information for the public to understand. The thorough process allows the public, including researchers and scientists to participate in the establishment of these standards that have led the nation to reduce our most widespread air pollutants. Although the Lung Association has frequently pushed to complete this process in a timely manner, we firmly support the thorough review as an essential process to provide the required protections for public health with an adequate margin of safety.

That margin of safety is a key reason that the Lung Association has long called on EPA to strengthen the NAAQS for SO₂. As this review found, the 26.5 million Americans with asthma, including 6.1 million children, face higher risks from difficulty breathing, asthma attacks and even hospital and emergency room admissions from breathing SO₂. In addition, compelling evidence warns that children and older adults also face higher risks of harm.

During the 2010 review, the Lung Association and our allies argued in support of a stronger standard of 50 ppb for one hour, to provide much more adequate protection to public health. We also urged EPA adopt a stronger 24-hour standard that matches the one in place in California of 40 ppb. We continue to support stronger standards to protect millions of Americans from this dangerous pollutant. EPA has data for five-minute exposures and we strongly support the CASAC recommendation that state and local agencies routinely report all five-minute averages to EPA to provide better assessments.



EPA estimated that 3.3 million Americans live in the 40 nonattainment areas which currently remain in nonattainment for the 2010 standard.⁶ Only 3 areas have met the SO₂ standard since its adoption in 2010. Millions more Americans live where the sulfur dioxide levels are lower, but still face risk for which they will not receive protection, if EPA retains the 2010 standard.

The American Lung Association again recommends that EPA adopt a one-hour standard of 50 ppb based on the 99th percentile and a 24-hour standard of no more than 40 ppb to protect the health of Americans.

Sincerely,



Deb Brown, Chief Mission Officer
American Lung Association

¹ Clean Air Act § 109(b)(1)

² *American Lung Ass'n v. EPA*, 134 F.3d 388, 389 (D.C. Cir. 1998); see also *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 464-71 (2001).

³ *Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1154 (D.C. Cir. 1980) at 1154-55.

⁴ Meng X, Wang C, Cao D, Wong C-M, Kan H. Short-term effect of ambient air pollution on COPD mortality in four Chinese cities. *Atmospheric Environment*. 2013; 77:149-154; Chen R, Huang W, Wong C-M, Wang Z, Thach TQ, Chen B, Kan H. Short-term exposure to sulfur dioxide and daily mortality in 17 Chinese cities: The China air pollution and health effects study (CAPES). *Environmental Research*, 2012. 118: 101-106; Kan H, Wong C-M, Vichit-Vadakan N, Qian Z. Short-term association between sulfur dioxide and daily mortality: The Public Health and Air Pollution in Asia (PAPA) study. *Environmental Research*. 2010; 110: 258-264.

⁵ Clark NA, Demers PA, Karr CJ, Koehoom M, Lencar C, Tamburic L, Brauer M. Effect of Early Life Exposure to Air Pollution on Development of Childhood Asthma. *Environ Health Perspect*. 2010; 118:284-290; Nishimura KK, Galanter JM, Roth LA, Oh SS, et al. Early-Life Air Pollution and Asthma Risk in Minority Children. The GALA II and SAGE II Studies. *Am J Res Crit Care Med*. 2013; 188 (3).

⁶ U.S. Environmental Protection Agency. Nonattainment Areas for Criteria Pollutants (Green Book). Current as of June 30, 2018. Accessed at <https://www.epa.gov/green-book>.