CLEAN WATER ACTION

November 29, 2021

Elizabeth A. Sheppard, Chair
Clean Air Scientific Advisory Committee
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington D.C. 20460

Re: Docket No. EPA-HQ-ORD-2014-0859

Dear Dr. Sheppard,

On behalf of Clean Water Action's over 60,000 members in Pennsylvania, I would like to submit these comments to the Clean Air Scientific Advisory Committee (CASAC) concerning the Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter. We greatly appreciate EPA's efforts to reconsider the current NAAQS for PM, and look forward to EPA's actions moving forward on this issue.

The NAAQS Need to Address Short Term PM2.5 Peaks: a Lesson from Pittsburgh

Clean Water Action has worked for several decades on the problem of poor air quality in Pittsburgh and Allegheny County, PA, in particular the impacts being felt by residents there on high levels of PM2.5. In considering the policy implications of the NAAQS for PM2.5, it is illustrative to look back at the past adjustments to the NAAQS, specifically in 2006 and 2012.

Allegheny County is only just now reached a point of (perhaps) consistently attaining the daily standard of 35 ug/m3 and the annual standard of 12 ug/m3. The modifier of perhaps is warranted as attainment has been greatly aided by a global pandemic which is not a reliable (or desirable) ongoing control mechanism for air pollution.

However, the overall situation is that it has taken 15 years, almost a full generation, for Allegheny County reach these standards, which are clearly inadequate to protect the public's health. It is critical that EPA not make a similar error in reconsideration of the PM2.5 standard and once again leave another generation at risk of morbidity and premature mortality from PM2.5 exposure.

Allegheny County has a mix of industrial point sources and mobile sources that account for high PM2.5 levels locally. However, direct PM2.5 emissions are still dominated by steel and coke production. One

company in particular, U.S. Steel, operates an integrated steel and coke operation, the Mon Valley Works, which includes the largest coke plant in North America, the Clairton Coke Works in Clairton, PA. To give you a sense of the impact of this one company has on Allegheny County, PM2.5 emissions from the Mon Valley Works is greater than all the on-road vehicles (cars and trucks) in Allegheny County, with a population of 1.2 million residents (data from the Allegheny County Health Department's (ACHD) emissions inventory submitted to EPA in their PM2.5 SIP).

Yet Allegheny County has mainly focused on waiting for upwind coal burning power plants in the Ohio Valley to close as their main strategy for ensuring that PM2.5 levels slowly decline, rather than require emission reductions from local industries that ACHD, which has Clean Air Act primacy, has permitting authority over. In particular, this strategy has been more effective in ensuring that annual averages decline, while short term daily exceedances are in particular more influenced by near field sources, such as U.S. Steel's operations in the Mon Valley.

However, this is not a repeatable strategy for Allegheny County, and it is critical that strengthening of the NAAQS for PM2.5 include reductions in short term standards. The nature of controlling coke plants in particular involve addressing problems that result in short term peaks in emissions. Coke plants are more like chemical plants than power plants, with thousands of fugitive emission points that can be far greater than one point stack emissions. **Standards that force companies and regulators to address these short term emission peaks will be far more effective at achieving the NAAQS than ones which are driven by annual average declines.**

As an example of this analysis, in 2019 the Liberty monitor, located downwind of the Clairton Coke Works in Allegheny County had a PM2.5 annual average of 12.2 ug/m3. The Liberty monitor in 2019 had 18 days over 25 ug/m3, including 9 over 35, with the highest day being 66.4. If you remove these 18 days, the annual average drops to 10.7. In essence, 5% of the days are accounting for 16% of the total exposure over a year. Continuing to allow this high level of peak days will make achieving significant drops in annual average exceedingly difficult to achieve, and we are concerned that such a standard setting is a recipe for another lengthy failure.

Recent Community Based Research on PM2.5 Impacts

There has been considerable community based research in Allegheny County examining the impact of poor air quality, in particular from PM2.5, on local residents. We strongly encourage CASAC to consider these findings as part of the reconsideration of the PM2.5 NAAQS.

At the end of 2015, another coke plant in Allegheny County, owned by Shenango Inc. and located on Neville Island, closed. While this plant is considerably smaller than the Clairton Coke Works, it remained a significant source of PM2.5 (8th largest in Allegheny County prior to closure). After the closure epidemiologists at ACHD and the University of Pittsburgh conducted a study to determine whether they

could measure a health impact from the reduced emissions.[1] Emergency department (ED) visits for residents within a mile of the plant decreased dramatically in the year following the closure, with decreases of 26% for cardiovascular disease, 38% for respiratory disease, and 64-80% for asthma. Researches found no similar changes in ED visits in two other control groups in Allegheny County who did not live near the plant. It's important to note that prior to Shenango's closure in 2015, the nearby downwind Avalon monitor in Allegheny County had a PM2.5 annual average of 10.9 ug/m3, there were no exceedances of the 35 ug/m3 daily standard, and the 98th percentile of daily values was 23.5, providing important community data on how PM2.5 levels below the current NAAQS are associated with significant health impacts.

Another study published earlier this year examined rates of Allegheny County residents living near the Clairton Coke Works seeking medical visits on days that daily NAAQS standards were exceeded in 2018 and 2019.[2] This study found that both outpatient and ED visits for asthma were doubled on days with NAAQS exceedances, with the largest effect occurring for PM2.5 exceedances.

Last, there has been considerable evidence in Allegheny County about how the long delays in reducing outdoor air pollution is resulting in significant impacts on disease prevalence. A 2020 study based on in school screenings found that Allegheny County children living near large pollution sources with elevated PM2.5 levels had a 22.5% asthma rate, over twice the state average and three times the national rate.[3]

In 2020, Clean Water Action helped coordinate a community coalition in Clairton, PA that established an innovative program to provide residents with home portable air cleaners to provide additional protection from outside air contaminants infiltrating the home. Residents had to provide health information to apply to the program, and information was received from 739 residents, over 12% of Clairton's population.

30% of residents reported having respiratory disease, 28% had cardiovascular disease, 28% had an ED or hospital stay in the past year, and 14% used a nebulizer or oxygen at home. While this program was established as a public health intervention and not as research, the prevalence of disease indicates a long history of poor air quality from industrial plants established over 100 years ago.

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[1] Brink LL, Marshall LP, Hacker KA, Talbott EO. Changes in emergency department visits for respiratory and cardiovascular disease after closure of a coking operation near Pittsburgh, PA. Journal of Air Pollution and Health. 2019; 4(4): 209-220. https://japh.tums.ac.ir/index.php/japh/article/view/216

[2] Morphew, T.L.; Venkat, A.; Graham, J.; Mehalik, M.; Anderson, N.; Gentile, D. Impact of a Large Fire and Subsequent Pollution Control Failure at a Coke Works on Acute Asthma Exacerbations in Nearby Adult Residents. *Toxics* 2021, *9*, 147. https://doi.org/10.3390/toxics9070147

[3] Deborah A. Gentile, Tricia Morphew, Jennifer Elliott, Albert A. Presto & David P. Skoner (2020) Asthma prevalence and control among schoolchildren residing near outdoor air pollution sites, Journal of Asthma, DOI: 10.1080/02770903.2020.1840584

This recent evidence should be considered by CASAC in their recommendations for new PM2.5 NAAQS, and provides important new data points that add to the evidence that both the annual and daily standards are not adequately protecting residents' health.

Policy Mechanisms for Improving Public Health through the PM2.5 NAAQS

EPA should consider a variety of approaches to the PM2.5 NAAQS that could help address the public health problem of PM2.5 exposure. Clean Water Action strongly supports lowering both the annual average and daily standard for PM2.5 based on both the public health research and need for establishing a NAAQS that will effectively reduce exposures as discussed previously.

In addition, there are other important policy tools in standard setting that could ensure that a numeric standard based on research does in fact result in exposures that are below the standard, especially for at risk populations (often over 50% of the total population being exposed).

First, CASAC should recommend that the daily PM2.5 standard be done as a rolling 24 hour average, and not a midnight to midnight standard. Data analysis of the Liberty monitor in Allegheny County conducted by John Graham at Clean Air Task Force (see his written comments for details on his methodology) found that the 24 hour rolling average has higher 24 hour periods compared to midnight to midnight, which results in both increased numbers of exceedance days and increased design values (DVs).

Using ACHD hourly data from continuous monitors at Liberty for 2018-2020:

	2018	2019	2020	2018-2020
12a to 12a: Days over 35	5	11	5	21
Rolling 24 hr: Days over 35	8	10	5	23
12a to 12a: Days over 30	14	17	9	40
Rolling 24 hr: Days over 30	19	18	12	49
12a to 12a: 98^{th} percentile	33.5	45.1	31.2	36.6
Rolling 24 hr: 98^{th} percentile	38.8	46.2	32.7	39.2

These are significant differences (7% increase overall) that have consequences on attainment determinations, as well as on public health. People are exposed to PM2.5 over 24 hours, not midnight to midnight. Continuous hourly monitoring has become the norm for AQI reporting needs, and EPA has been moving agencies to have continuous monitoring at all locations.

Second, CASAC should recommend that the daily standard utilize the 99th percentile instead of the 98th. There is no public health rationale for the 98th percentile and as mentioned above, with daily continuous monitoring becoming the norm, utilizing a 99th percentile standard should pose no pragmatic concerns. The current 98th percentile standard allows for a significant number of allowable exceedance days (a minimum of 7 a year in general, and likely more), putting at risk populations at risk for morbidity and mortality as evidenced by recent studies. If we are to believe that the numeric standards represent a limit on exposure, the form of the standard should reinforce that limit, not undercut it. In addition, as previously discussed, greater allowances for exceedance days will only make attainment of a stricter annual standard more challenging and likely to result in delays in achieving public health goals.

Last, CASAC should recommend that both the annual and daily standard should utilize one significant figure in order to establish that the numeric standard is a limit, i.e. 12.0 not 12 and 35.0 not 35. As currently formulated, the standards are in fact 12.49 and 35.49, which is 4.1% and 1.4% greater than the numeric 'standard'. These types of loopholes in the form of the standard have only stood in the way of ensuring that the NAAQS are health protective.

Again, we thank you for the opportunity to have input into CASAC's important work and look forward to seeing progress at EPA in moving a new NAAQS for PM2.5 forward. Please direct any correspondence on this matter, preferably to my attention at marnowitt@cleanwater.org or to the Pittsburgh office address listed on the first page.

Sincerely,

Myron Arnowitt
Pennsylvania Director