UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF LOUISIANA

RISE ST. JAMES LOUISIANA, et al.,

Plaintiffs,

V.

COURTNEY J. BURDETTE, in her official capacity as Secretary of the Louisiana Department Of Environmental Quality, et al.,

Defendants.

Civil Action No. 3:25-cv-00429-JWD-RLB

MOTION FOR LEAVE TO FILE BRIEF OF AMICI CURIAE ASSOCIATION FOR ADVANCING PARTICIPATORY SCIENCES AND AMERICAN THORACIC SOCIETY ON BEHALF OF PLAINTIFFS AND INCORPORATED MEMORANDUM IN SUPPORT

NOW into court come the Association for Advancing Participatory Sciences and American Thoracic Society (collectively, "Amici Filers"), respectfully seeking leave to file the attached amici curiae brief in support of Plaintiffs, RISE St. James Louisiana, et al. This brief seeks to provide useful context for the Court on the nature and value of community air monitoring – i.e., how community air monitoring works, how it contributes to improved understanding of (and strategies to reduce) air pollution, how it can be of value to government agencies, industry, medical professionals and their patients, as well as the general public, and the adverse impacts of the CAMRA law. As nonprofit organizations of scientists, citizen-scientists, and medical professionals, Amici Filers have significant direct experience with the use and applications of community air monitoring that may prove valuable and informative to the Court.

Amici Filers informed all parties of this filing and requested consent to file. Plaintiffs have consented; Defendants opposed. Amici Filers respectfully request this Court grant leave in

order to fully to allow for the full consideration of relevant information pertinent to this dispute. *See Lefebure v. D'Aquilla*, 15 F.4th 670, 673-74, 676 (5th Cir. 2021) (supporting consideration of amicus briefs by courts).

By reason of the foregoing, Amici Filers respectfully requests that this Court grant its instant motion and permit the filing of their amicus curiae brief, filed herewith.

Respectfully submitted this 5th day of September, 2025

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ORDER

Considering the Motion for Leave to File Brief of Amici Curiae Association for Advancing Participatory Sciences and American Thoracic Society, IT IS ORDERED that the Motion is GRANTED and the brief shall be filed into the record of this matter.

Baton Rouge, Louisiana, this ___day of September, 2025.

_____

United States District Court Judge

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BRIEF OF THE ASSOCIATION FOR ADVANCING PARTICIPATORY SCIENCES AND THE AMERICAN THORACIC SOCIETY AS AMICI CURIAE IN SUPPORT OF PLAINTIFFS

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STATEMENT OF INTEREST

This amici brief is submitted in support of Plaintiffs by the Association for Advancing Participatory Sciences ("AAPS") and the American Thoracic Society ("ATS"). AAPS is a national nonprofit organization whose mission is to catalyze the field of participatory sciences to enrich research inquiries and serve community priorities. AAPS members, and other experts that manage participatory science projects, are concerned about the broad impact of the Louisiana Community Air Monitoring Reliability Act ("CAMRA") on community air monitoring across the nation and believe that it will adversely impact the growing field of participatory sciences.

The American Thoracic Society ("ATS") is a medical professional organization of nearly 30,000 physicians, scientists, researchers, nurses, respiratory therapists, and allied health professionals. The mission of ATS is to prevent, detect, treat, and cure respiratory diseases, critical care illnesses, and sleep-disordered breathing. To put it simply, they are lung experts. Of significant importance to this brief, ATS medical professionals utilize community air monitoring data in their research, and patients of ATS member doctors use this data to manage their health daily.

Counsel for Amici contacted counsel for the parties seeking consent to the filing of this brief. Plaintiffs consent to the Amici's filing and Defendants indicated they oppose the filing.

STATEMENT OF AUTHORSHIP AND FUNDING

Counsel for the parties to this case did not author this brief in whole or in part. No party or party's counsel contributed money to fund the preparation or submission of this brief. No person other than amici, its members, or counsel, contributed money to fund or submit the brief.[1]

[1] This statement is required per Fed. R. App. P. 29 (a)(4)(E) and is included here as there are no explicit rules at the District Court level regarding content of amicus briefs.

SUMMARY OF ARGUMENT

Air pollution poses a serious threat to the health of residents of Louisiana. Indeed, according to 2019 data from the Environmental Protection Agency ("EPA"), more industrial toxic air pollution is released annually in Louisiana than in any other state.[2]

Air pollution monitoring is an essential tool used to detect elevated pollution, which can support enforcement of the nation's health-based air quality standards. Under the Clean Air Act, EPA is required to establish and oversee a national air pollution monitoring network, which is operated largely by the states ("the national air monitoring system"). This national air monitoring system, including that operated in Louisiana, uses very accurate, EPA-approved devices, but is limited in its spatial coverage and the type of pollutants it detects.[3] Because of such limitations, the existing EPA-approved air monitoring network does not adequately satisfy the need for data at the neighborhood scale, especially in Louisiana communities that live nearest to major sources of industrial pollution and suffer the worst health impacts.

Air monitoring is also done by community organizations, researchers, and other non-governmental entities (referred to herein as "community air monitoring").[4] Community air monitoring is high quality data gathering carried out with the support of technical experts. The data is "fit for purpose" in many potential applications including enforcement.

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[2] Lisa Lee, *Cancer Alley: Solutions for Effective Regulation and Enforcement of Air Pollution*, 23 Seattle J. Soc. Just., 53, 54 (2025).

[3] For the purposes of this brief, the term "national air monitoring system" will be used to refer to the national air pollution monitoring network under the Clean Air Act. Because data from this monitoring network is used to determine compliance with air pollution standards, EPA uses strict performance criteria to formally certify monitoring methods that are acceptable, including Federal Reference Methods (FRMs) or Federal Equivalent Methods (FEMs). Under CAMRA, community air monitoring must use "Environmental Protection Agency-approved or promulgated emission test or monitoring method[s]," similar to the monitors used in the national air monitoring system. *See* U.S. Env't Prot. Agency, EPA Tools and Resources Webinar FRMs/FEMs and Sensors: Complementary Approaches for Determining Ambient Air Quality (2019).

[4] For the purposes of this amici brief, references to "community air monitoring" will refer to monitoring that was not conducted with EPA-approved devices and methods and therefore precluded by CAMRA.

While lower-cost air quality measurement devices used in community monitoring are not necessarily equivalent to EPA-approved monitors used by the federal government and the Louisiana Department of Environmental Quality (and are not used for regulatory purposes by EPA and most states), they are valuable for supplementing the limited geographic coverage of federal monitors by filling data gaps and highlighting local pollution hot spots that may justify further investigation and monitoring. The data can also educate community members about environmental conditions and help individuals make informed decisions about their own health and exposure to pollution.

Restricting the use of community-generated data deprives the public, scientific researchers, and government agencies of information that has significant value, and air quality data is no different. Rather than restricting it, community air monitoring should be encouraged and supported to maximize its benefits for the public. Moreover, Amici are concerned that CAMRA might lead to legislation that limits other forms of participatory science nationwide.

ARGUMENT

I. Community air monitoring combines the strengths of community members and scientists as a strategy for addressing risks from air pollution.

More industrial toxic air pollution is released annually in Louisiana than in any other state.[5] Elevated levels of air pollution pose a serious risk to Louisiana's public health, as long-term exposure to air pollutants is associated with a host of adverse health effects, including

[5] Lisa Lee, *Cancer Alley: Solutions for Effective Regulation and Enforcement of Air Pollution*, 23 Seattle J. Soc. Just., 53, 54 (2025).

respiratory and cardiovascular impacts and lower cognitive ability.[6] Recent estimates indicate that air pollution causes about 7 million premature deaths every year.[7]

Community air monitoring allows communities to better understand these risks and take appropriate preventative measures. EPA defines community air quality monitoring as "local efforts to measure and understand what is in the air a community breathes."[8] These efforts typically involve collaboration between residents and scientists to collect and interpret data, with the ultimate goal of improving local air quality and to inform preventative health decisions.

Community air monitoring is part of a larger shift in how some scientific research is being conducted worldwide, referred to as "participatory science." Participatory science combines the strengths of scientific inquiry with the knowledge, insights, and observations of members of the public. This collaborative work can address research questions that might be difficult or impossible for scientists, including government scientists, alone to tackle. Participatory science, in contrast to more traditional scientific research, focuses research on specific concerns and issues that affect individual communities.

Community air monitoring plays a critical role in understanding Louisiana's air pollution challenge, complementing the national air monitoring system run by EPA and the state. Community air monitoring can take a wide variety of forms and often involves the use of new technologies for measuring air quality, including portable low-cost sensors that are commercially available, mobile monitoring systems, and instruments used by research scientists, as well as satellite data and stationary fence-line monitors at the perimeter of industrial facilities.

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[6] Roque, Andrews & Santos-Lozada, *Identifying air quality monitoring deserts in the United States*, Proc. Nat'l Acad. Sci. U.S.A., April 2025, at 1.

[7] *Id.*

[8] U.S. Env't Prot. Agency, *Webinar Series: Community Air Monitoring Fundamentals*, (June 10, 2025), *available at* https://www.epa.gov/amtic/CommunityAirMonitoringWebinars.

Community air monitoring generally does not involve the use of EPA-approved Federal Reference Methods (FRMs) or Federal Equivalent Methods (FEMs).[9]

Examples of the various monitoring types illustrate the breadth and ability of community monitoring to assist and educate the public about health impacts from air quality. First, small, easy-to-use sensors, such as PurpleAir monitors which measure particulate matter, can be deployed in large numbers to provide high-resolution, real-time data on specific pollutants. They are often used to detect trends in neighborhoods and identify pollution hotspots, providing communities with accessible data. PurpleAir sensors are linked in a large, widely available, crowd-sourced network of over 10,000 air sensors, to help users make daily lifestyle choices and to minimize air pollution-based health risks.[10]

Mobile air monitoring is another example of community air monitoring technology. This can involve sensors attached to vehicles that map air quality across different driving routes or lightweight devices that can be worn or carried by community members, which create a personalized view of daily exposure to pollutants. Remote-sensing satellites that gather data over large areas take into account other factors that impact air quality patterns, and stationary fence-line monitors near industrial facilities are also used in community air monitoring.

Community air monitoring, in its various forms, has proven valuable across the country. Data from low-cost sensors can be used to educate the public on air quality conditions and guide residents on how to best avoid unsafe exposure. Louisiana has a long history of community air monitoring. The Louisiana Bucket Brigade, founded in 2000 and named for the "bucket" used to conduct air sampling in order to document toxic air pollution, was an early example of low cost

[9] *See* note 3.

[10] Karoline K. Barkjohn, Brett Gantt & Andrea L. Clements, Development and application of a United States wide correction for PM2.5 data collected with the PurpleAir sensor, 14 Atmos. Meas. Tech. 4618 (2021).

air monitoring used by a community group.[11] The Brigade continues to fight for clean air 25 years later, citing the same reasons expressed by Amici.[12] The air sampling "bucket" is similar to Summa canisters used by government and industry, which collects air in a Tedlar bag to then be analyzed in a laboratory using gas chromatography–mass spectrometry. Whether or not these would be permitted under CAMRA is unclear at best, and would make communities reluctant to use such methods when trying to protect their health.

In another project, the Louisiana Environmental Action Network (LEAN) hired a private company to conduct mobile air monitoring in south Louisiana.[13] The project used specialized vehicles to measure and map pollution levels in more than 20 communities along the Mississippi River corridor.[14] This community-generated data provided a more detailed, hyperlocal understanding of air quality in historically Black communities than traditional, stationary monitors, which don't capture the full scope of neighborhood-level pollution.

In November 2022, the EPA announced $2.4 million of grant funding to enhance community air monitoring in Louisiana.[15] These grants strengthen local, on-the-ground capacity for community monitoring across the state including: assistance for community groups with air quality monitoring and civic engagement through the Deep South Center for Environmental

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[11] Louisiana Bucket Brigade, *History of the Bucket*, available at https://labucketbrigade.org/pollution-tools-resources/the-bucket/# (last visited Sept. 4, 2025).

[12] Community members usually lack the data they need. As the Brigade knows, "[m]onitoring is the only way to confirm what is in the air. The Louisiana Department of Environmental Quality and the federal Environmental Protection Agency often lack appropriate and consistent methods of monitoring air quality – their monitoring stations can be sporadic and don't all test for the same chemicals." Louisiana Bucket Brigade, *Why Monitoring Matters*, available at https://labucketbrigade.org/pollution-tools-resources/the-bucket/#.

[13] LEAN, Community Air Monitoring Network, https://leanweb.org/about-lean/projects/community-air-monitoring-network.

[14] *Id.*

[15] Press Release, EPA Announces Louisiana to Receive Nearly $2.4 Million for Air Monitoring Projects, U.S. Env't Prot. Agency (Nov. 3, 2022), https://www.epa.gov/newsreleases/epa-announces-louisiana-receive-nearly-24-million-air-monitoring-projects.

Justice; additional community monitoring by the Louisiana Department of Environmental Quality ("LDEQ") in St. James Parish, Alexandria and Pineville; and a citizen science project in a New Orleans neighborhood (Treme), managed by Louisiana State University. Any data collection in these EPA-funded projects must be done in accordance with a rigorous research design called a quality assurance project plan.

These types of air quality data collection have the ability to supplement and strengthen the national air monitoring system. Rather than chilling this type of effort, as CAMRA does, Louisiana should be leaning into this collaborative data collection approach to ensure information exists to help protect health and improve air quality.

II. The national air monitoring system has significant limitations.

a. Air monitoring under the Clean Air Act

To appreciate the value and uses of community air monitoring, it is necessary to understand the system for air quality monitoring established under the Clean Air Act (CAA). The EPA defines National Ambient Air Quality Standards (NAAQS) for six common air pollutants (called "criteria pollutants"), including particulate matter, carbon monoxide, and sulfur dioxide.[16] These standards define the maximum permissible levels of criteria pollutants in the ambient air, based on scientific understanding of how air pollution impacts public health and welfare.[17] The primary purpose of enforcing U.S. air quality regulations is to protect public health and the environment from harmful air pollutants. Enforcement of these regulations ensures compliance with the CAA and the NAAQS, leading to cleaner air, reduced respiratory illnesses, fewer premature deaths, and a healthier environment for ecosystems and the planet.

[16] National Primary and Secondary Ambient Air Quality Standards, 40 C.F.R. §50 *et seq*. (2025).
[17] 42 U.S.C. §7409.

To assess compliance with the NAAQS, a national system of air monitoring is used, with the EPA and states each playing a part.[18] States such as Louisiana maintain networks of EPA-approved monitoring devices that are used to assess compliance with the NAAQS, identify areas where pollution levels exceed the standards, track trends in air quality, and guide development of pollution reduction strategies. This data is then reported to the EPA's Air Quality System, where it is analyzed and stored to assess effectiveness of air quality management programs. It may also be made public on platforms such as EPA's AirNow.[19]

In Louisiana, as part of the national air monitoring system, the LDEQ maintains a statewide network of monitoring stations to measure criteria pollutants and track air quality trends. Across the entire state of Louisiana, there are 29 monitoring sites that collect real-time air pollution data, as well as seven non-continuous monitoring sites.[20] There are also four temporary monitoring sites that are used to collect a year of data in specific locations.[21]

b. The national air monitoring system has significant limitations in both the area covered and the types of pollutants monitored

The purpose of the national air monitoring system is to provide information about air pollution levels to support the implementation of the Clean Air Act. This monitoring program does provide a great deal of standardized, reliable data. However, it has significant gaps.

First, the national air monitoring system was primarily designed to measure criteria pollutants listed under the Clean Air Act.[22] It does not, for the most part, monitor hazardous air

[18] 42 U.S.C. §7619.

[19] *About AirNow*, Air Now, https://www.airnow.gov/about-airnow/ (last visited Sept. 1, 2025).

[20] La. Dep't of Env't Quality, Report: Louisiana Senate Concurrent Resolution 30, at 9 (2025).

[21] *Id.* at 9-10.

[22] U.S. Government Accountability Office, Air Quality Sensors: Policy Options to Help Address Implementation Challenges, at 4-5.

pollutants ("HAPs").[23] These are chemicals that are known or suspected to cause serious health effects, such as cancer, reproductive effects, or birth defects.[24] This category of air pollutants includes chemicals like ethylene oxide, chloroprene, volatile organic compounds like benzene and formaldehyde, and heavy metals.[25] There are no standards for ambient levels of HAPs; rather, the regulations for HAPs require certain industrial facilities to adopt specific pollution control technologies to reduce emissions.[26]

A 2021 Louisiana Legislative Audit noted that several areas of the state "are highly industrialized and have high concentrations of air pollution" involving chemicals not measured by AirNow.[27] An additional 2019 investigation found elevated levels of chlorine and ethylene oxide in parts of Louisiana's industrial river corridor.[28] The national air monitoring system focuses on criteria pollutants, so information on other hazardous air pollutants is limited.[29]

Second, because of the high cost of the monitors used by the state, only a small number of monitoring stations in strategic areas are used.[30] As a result, the current monitoring network in Louisiana does not consistently reflect actual air quality on a local level, where geographic

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[23] *Id.*

[24] U.S. Environmental Protection Agency, What are Hazardous Air Pollutants? (Nov. 21, 2024), https://www.epa.gov/haps/what-are-hazardous-air-pollutants.

[25] U.S. Environmental Protection Agency, Initial List of Hazardous Air Pollutants with Modifications, https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications.

[26] *Hazardous Air Pollutants*, U.S. Env't Prot. Agency (Jul. 8, 2025), https://www.epa.gov/haps.

[27] Mark Schleifstein, *Air Quality Regulators in "Cancer Alley" Have Fallen Dangerously Behind* (Jan. 29, 2021, at 06:00 ET), https://www.propublica.org/article/deq-louisiana-pollution; Louisiana Legislative Auditor, *Monitoring and Enforcement of Air Quality* (2021).

[28] Schleifstein, *supra* note 27.

[29] United States Government Accountability Office, Air Quality Information, Need remains for plan to modernize air monitoring, at 5, https://www.gao.gov/assets/gao-22-106136.pdf.

[30] EPA Tools and Resources Webinar FRMs/FEMs and Sensors: Complementary Approaches for Determining Ambient Air Quality, *supra* note 3, at 13 ("RMs and FEMst typically cost in the range of $15-40,000 plus operating costs, in contrast to lower-cost air sensor technology that range from $200-5000.").

differences can be stark.[31] Thus, pollution "hot spots" are often overlooked by the national air monitoring network.[32] In fact, in a 2020 report, the U.S. Government Accountability Office recommended that EPA develop a plan to modernize air quality monitoring, after finding that "the system was unable to meet users' current needs for information to better manage health risks from air pollution."[33]

While federal monitoring networks can provide real-time data for criteria pollutants, they do not provide adequate data at the local scale to record episodic events in those communities. Real-time data allows community members to take precautions when air pollution levels are elevated (e.g., adults not exercising outdoors and children not playing at outdoor playgrounds when air quality is poor). Access to real-time, local data about air pollution is essential for protecting vulnerable populations. Vulnerable individuals, including children under 18, adults over 65, and people with chronic lung or heart disease, are more likely to experience severe health impacts from air pollution compared to the general population.[34] When used to make informed decisions, community air monitoring data can help reduce illness and mitigate health disparities in vulnerable communities.

The existing national air monitoring system, without the support of community air monitors, cannot adequately characterize local exposure to all types of air pollution in Louisiana

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[31] Wang, Y. et. al., U.S. Ambient Air Monitoring Network Has Inadequate Coverage under New PM2.5 Standard, Environ. Sci. Technol. Lett. 2024, 11, 11, 1220–1226.

[32] James Bradbury & Emma Cross, *Issue Brief: How Community-Based Air Quality Monitoring Can Make Climate Policy More Equitable*, Georgetown Climate Ctr. (June 1, 2023), https://www.georgetownclimate.org/articles/community-based-air-quality-monitoring-equitable-climate-policy.html.

[33] *Id*.

[34] *Patient Exposure and the Air Quality Index*, U.S. Env't Prot. Agency (May 2025), https://www.epa.gov/pmcourse/patient-exposure-and-air-quality-index#:~:text=However%2C%20exposures%20to%20ambient%20concentrations,and%20people%20of%20lower%20SES; *Populations at Risk*, Am. Lung Ass'n (2025), https://www.lung.org/research/sota/key-findings/people-at-risk.

that pose risks to public health.[35] As Louisiana carries a heavy burden of pollution, any effort to curtail community air monitoring will leave a major gap in public health information and the regulation of these hazardous air pollutants.

III. Community air monitoring is an invaluable tool for filling gaps in the national air monitoring system, supporting policy and public health research, and educating the public.

There is growing consensus that data collected from community air monitoring has many potential uses. At a broad level, uses include public information, research, and policy or regulatory applications.[36] Specifically, community air monitoring can provide screening-level data on neighborhoods where higher levels of pollution may exist. This can call attention to pollution "hot spots" possibly indicating a need for enforcement, or for the state to place a regulatory monitor in a neighborhood to better measure conditions there. Some communities that live in close proximity to industrial sites use fence-line monitors to serve as an early warning system to detect the occurrence of industrial accidents and pollution spikes. Low-cost sensors are an economical way for air quality managers to pinpoint the origin of pollution in the community, whether from industrial sources, traffic or other sources. For health researchers, community-level data on air quality allows more accurate assessment of health risks. Government managers use community air measurements to guide policies and actions to improve air quality and protect public health, and to evaluate the effectiveness of pollution reduction strategies.

It is important to note that in all these possible applications, the data does not have to be from an FRM or FEM device to be useful. Data from lower-cost sensors, for example, is less

[35]Bradbury, *supra* note 32.

[36] National Advisory Council for Environmental Policy and Technology, EPA 220-R-18-001, *Information to Action—Strengthening EPA Citizen Science Partnerships for Environmental Protection* 11 (2018).

accurate and precise than that from FRM or FEM devices, but is still of sufficient quality to indicate that a problem exists or to detect an unusual spike in emissions from a facility.

a. Community air monitoring data can supplement the national air monitoring system's data.

Community air monitoring is especially valuable in filling the gaps left by the national air monitoring system, as it operates locally and is tailored to monitor the pollutants often overlooked by EPA-approved monitors. A recent report from the Congressional Research Service evaluated the appropriate role of low-cost air sensors in supporting traditional regulatory monitoring networks. The report noted that some state and local air agencies now successfully use low-cost air sensors to supplement regulatory monitors, fill data gaps, and help direct limited enforcement resources.[37]

The report concluded that "although…these low-cost air sensors are generally less accurate than their more expensive regulatory counterparts, … they can be deployed in large numbers to supplement information provided by the national ambient air monitoring networks. Among the possible uses are identifying pollution 'hot spots,' providing local community-scale air monitoring, assisting in the site selection for new or relocated regulatory monitors, and conducting scientific research."

b. Government agencies are increasingly finding uses for community monitoring data

Some local government agencies have figured out creative ways to use community data. For example, in the Seattle area, the Puget Sound Clean Air Agency publishes an on-line

[37] Omar M. Hammad, Cong. Rsch. Serv., TE10097, Examining the State of Air Quality Monitoring Technology 14 (2024).

air quality sensor map that displays levels of particulate pollution in the area, using data collected by the public.[38]

A number of states are also demonstrating how to work collaboratively with communities to improve air monitoring, through genuine partnerships in which community members are involved and have a say in the monitoring projects. Minnesota is setting up neighborhood-scale air monitors in the Twin Cities metro area.[39] New York funded a mobile air monitoring study in 10 disadvantaged communities.[40] California supports local-scale monitoring through its Community Air Protection Program.[41] New Jersey created on-line resources to support its Community Science Air Monitoring program.[42] Massachusetts now has three full-time staff that support community air quality monitoring projects across the state.[43] And, Oregon launched four pilot projects through a Community Air Action Planning program.[44] In contrast to CAMRA, these states are actively supporting community air monitoring programs to improve understanding of local air quality and public health.

c. Scientists are developing ways to use data from low-cost devices together with data from EPA-approved monitors.

[38] Environmental Law Institute, Citizen Science Programs at Environmental Agencies: Case Studies, October 2021, at 24-5.

[39] *MPCA awards $4.83 million for air sensors in metro area communities*, Minnesota Pollution Control Agency (June 10, 2025), https://www.pca.state.mn.us/news-and-stories/mpca-grants-provide-air-sensors-in-metro-communities.

[40] Press Release, DEC Releases First Phase Results of Statewide Community Air Monitoring Initiative, Dep't of Env't Conservation (Aug. 13, 2024).

[41] *Community Air Protection Program*, California Air Resources Board, https://ww2.arb.ca.gov/capp/community-air-protection-program (last visited Sept. 1, 2025).

[42] *Community Science Air Monitorin*g, Dep't of Env't Prot.: Community Air Science Monitoring https://dep.nj.gov/airmon/community-science/ (last visited Aug. 29, 2025).

[43] Hadley Barndollar, *Massachusetts to Double Community Based Air Quality Sensors* (May 2, 2024), https://www.govtech.com/products/massachusetts-to-double-community-based-air-quality-sensors.

[44] Or. Dep't of Env't Quality, Community Air Action Planning: Pilot Program Overview Fact Sheet, https://www.oregon.gov/deq/aq/Documents/caapOverviewFS.pdf (last visited Sept. 1, 2025).

Rather than viewing various monitoring technologies as competing for supremacy for use in scientific studies and research, scientists today can, and do, combine the strengths of multiple monitoring technologies. A 2017 workshop on this data integration approach, organized by the American Thoracic Society in coordination with EPA, NASA and the National Institute of Environmental Health Sciences, concluded that "integration between technology groups is essential to maximizing the potential public health benefit of these technologies."[45]

Multiple studies support the ATS workshop conclusions. In one study, PurpleAir low-cost sensors were paired with the federal air quality system (AQS) regulatory monitors, which improved estimation of the spatial distribution of pollution and identification of pollution "hot spots".[46] Another study found the use of hybrid models that combine data from PurpleAir networks with regulatory data may better capture small data variations, which will improve scientific models that estimate the actual exposure of people to pollution.[47]

For more than a decade, EPA has recognized the combined value of both government monitoring programs used in regulatory programs required by the Clean Air Act and community air monitoring, as evidenced by the use of PurpleAir data in its AirNow Fire and Smoke Map.[48]

d. The supplemental data community air monitoring provides has been extremely beneficial for public health research

The gaps in the national air monitoring system also limit the ability of researchers to adequately study health harms. Data from community air monitoring supplements data gathered by EPA and state agencies, and can help fill these gaps.

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[45] See, Cromar et al., *Air Pollution Monitoring for Health Research and Patient Care. An Official American Thoracic Society Workshop Report*, 16 Ann. Am. Thorac. Soc. 1207 (2019).

[46] Jianzhao Bi et al., *Incorporating Low-Cost Sensor Measurements into High-Resolution PM 2.5 Modeling at a Large Spatial Scale*, 54 Environ. Sci. Technol. 2152, 2152 (2020).

[47] Tianjun Lu et al., *Using crowd-sourced low-cost sensors in a land use regression of PM2.5 in 6 US Cities*, 15 Air Qual. Atmos. Health 668 (2022).

[48] Barkjohn, *supra* note 10, at 22.

In response to the inadequacies of the existing air monitoring network and the lack of information on exposure to fine particulate matter ($PM_{2.5}$) across disadvantaged communities, a study in Southern California leveraged PurpleAir sensors and engaged community residents to develop a community-based monitoring program. Results of the study concluded integrating PurpleAir sensors into a citizen science-based air monitoring program has promising applications to resolve monitoring disparity and capture "hotspots" to inform emission control and urban planning policies, thus improving exposure assessment and promoting environmental justice.[49]

In sum, integration of EPA data with citizen science data across multiple monitoring technologies is critical, because the monitoring systems have different strengths, allowing health researchers, physicians, and scientists to maximize accuracy, better protecting the public and providing better healthcare. Thanks to improvements in data quality in low-cost monitors and other technologies, health researchers and physicians now have fuller and more cohesive understandings of air pollution monitoring for health research.[50] CAMRA's data validation requirements as well as its limitations on release of data endanger this and will result in public health experts and scientific researchers having less reliable and holistic data to base their research and patient care on.

IV. CAMRA incorrectly assumes that community air monitoring lacks data integrity and is of low quality.

a. Community data is scientifically rigorous and "fit-for-purpose"

[49] Tianjun Lu et al., *Leveraging Citizen Science and Low-Cost Sensors to Characterize Air Pollution Exposure of Disadvantaged Communities in Southern California*, Int. J. Environ. Res. Public. Health, July 2022, at 1.
[50] Cromar et al., *supra* note 45, at 1212.

If the drafters of CAMRA were worried that data from community air monitoring is of low quality and likely to be misrepresented or misused, the Amici can attest that this concern is unfounded.

CAMRA implies that air quality data is only useful, especially for enforcement purposes, if it is gathered using EPA-approved FRMs or FEMs. While it is true that non-FRM monitoring devices do not attain the same degree of accuracy and precision as the officially approved monitors used by the state, the data generated is valuable and useful in many ways.

Furthermore, the quality of non-FRM devices is constantly improving. Over the past decade, substantial improvements in data quality in community air monitoring have occurred due to technical innovation in sensor design, improved data processing algorithms, and development of proven sensor calibration methods. The result is that low-cost sensors used in community air monitoring can now, with proper quality assurance and control practices, produce data that closely tracks the data produced by traditional air quality monitoring technology.[51]

Environmental monitoring increasingly is conducted following the common sense approach to data quality known as "fit for purpose". This approach asks whether the data is suitable for its intended use, rather than being perfect, as absolute perfection in all data is often impractical and unnecessary (e.g., design of a screening study is different than data collected for regulatory decisions). Current air monitoring technology is sufficient for use in local studies, to monitor trends in air quality, to identify potential air pollution hot spots within a community, for daily risk communication, and for assessing the effectiveness of air quality interventions.

CAMRA also seems to be predicated on the fear that community monitoring will not be up to professional research standards, either in the design of research or the way in which it is

[51] *The Potential of Low-Cost Sensors for Comprehensive Air Quality Management*, Clarity: Blog (Jan. 1, 2024), https://www.clarity.io/blog/low-cost-sensors-for-comprehensive-air-quality-management.

communicated. Certainly, as in any research effort, managing the reliability and accuracy of data from community use of air sensors is crucial for the results to be scientifically valid and actionable. Community monitoring leaders are fully aware of the need to carry out and report their work with care. Most projects are done with scientific advisors and academic partners to help ensure that research is rigorous and that the results are reported accurately.

b. Resources and tools are available to support high-quality community air monitoring

Many resources already exist to support the design of rigorous community-air monitoring projects. For example, The EPA Handbook for Citizen Science Quality Assurance and Documentation[52] recommends preparation of a Quality Assurance Project Plan (QAPP) – a document that explains how the project will use quality assurance and quality control activities, so that the data collected in a project can be used for its intended purpose. By writing and applying a QAPP, an organization builds data quality procedures into the project from the beginning. This increases confidence that the data will meet the specific objective of the project. Importantly, the individuals interested in the project, or the agencies that make decisions based on the data from the project, will have a better understanding of the underlying data quality.

Additionally, EPA's Air Sensor Guidebook[53] helps organizations set up community air monitoring projects so that the data collected can serve the specific objectives established for a project (ranging from community education to informing policies and government decision making). EPA's "how to" guide encourages careful planning to set up a community air monitoring project, which begins with defining the purpose for monitoring or the question the

[52] U.S. Env't Prot. Agency, EPA 206-B-18-001, *Handbook for Citizen Science Quality Assurance and Documentation* 5 (2019), *available at* https://www.epa.gov/sites/default/files/2019-03/documents/508_csqapphandbook_3_5_19_mmedits.pdf.

[53] U.S. Env't Prot. Agency, EPA/600/R-22/213, The Enhanced Air Sensor Guidebook (2022), *available at* https://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=545843&Lab=CEMM.

project seeks to answer. The document uses the standard EPA "data quality objective" process to determine what kind of data quality assurance processes are needed to collect data that can be used for different purposes.[54]

Over many years, EPA has provided extensive support for community air monitoring, in the form of training, "toolbox" websites, air sensor loan programs, technical resources, and grant funding. This support has strengthened the quality and accessibility of the resulting air quality data, enabling it to be used to inform policy and decision making to improve air quality.

V. Community air monitoring data has an important role to play in the enforcement of environmental regulations.

Another important use of community monitoring data is to support the enforcement of environmental regulations. Although data from the kinds of devices typically used by community organizations is not equivalent to that from devices that are approved by EPA for regulatory purposes, it can still be used in appropriate cases. EPA regulations specifically state that "any credible evidence" may be considered in determining whether a violation has occurred, including data from devices that are not EPA-approved.[55]

More often, data from community monitoring efforts serves as an early indicator of problems that need to be investigated. Because agencies can never inspect or monitor every possible source of pollution, they have always relied on citizen complaints, and the new ability of communities to bring quantitative data to bear makes their input more robust and valuable. The data can shed light on conditions that indicate public health risks and, in some cases, indicate the possibility of a violation. Agencies usually use more advanced devices and methods

[54] *Id.* at 40,46.

[55] Approval and Promulgation of Implementation Plans, 40 C.F.R. §52.12 (2025); see also Credible Evidence Revisions, 62 Fed. Reg. 8314, 8316 (Feb. 24, 1997) (to be codified at 40 C.F.R. pts. 51-52, 60-61). When CAMRA was being debated in the Louisiana legislature, EPA sent a letter stating that its restrictions were inconsistent with this federal rule. A copy of that letter is attached.

for that investigation, but even if the community data is not ultimately used in the enforcement action, it is a valuable first step in making enforcement effective.

For example, in 2004, residents of Tonawanda, NY used simple monitoring devices to measure local air pollution.[56] The results showed extremely high levels of benzene.[57] This data prompted the New York State Department of Environmental Conservation and the EPA to conduct more sophisticated monitoring. The state and federal experts found benzene levels 75 times higher than the EPA guideline (as well as high levels of five additional air pollutants) and identified Tonawanda Coke Corporation as the predominant source of pollution.[58] As a result, the company installed new air controls, resulting in a 92% decrease in benzene emissions.[59]

If the agencies do not take action, communities can initiate civil actions to address violations under the Clean Air Act. In that context, as with government enforcement, community monitoring data can be the initial indicator of a problem that ultimately leads to a citizen suit.[60]

Citizen suits function as a critical tool to hold entities accountable for violating federal statutes, especially when the EPA or state regulators have not diligently pursued enforcement. Citizen science data, which can include photographs, video, and sampling results, can be used to establish key elements of a legal case.[61]

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[56] Environmental Law Institute, Citizen Science Programs at Environmental Agencies: Case Studies, October 2021, at 14-16.

[57] *Id.* at 14.

[58] *Id.*

[59] New York Department of Environmental Conservation, Tonawanda Community Air Quality Update, https://extapps.dec.ny.gov/docs/air_pdf/tonfact2016.pdf.

[60] Even if the citizen science data itself isn't used to establish the elements of the lawsuit, the low cost of community air monitoring sensors often is the only way communities realize the problems with their air and of the need to obtain additional data to prove the violations.

[61] Even if the citizen science data itself isn't used to establish the elements of the lawsuit, the low cost of community air monitoring sensors often is the only way communities realize the problems with their air and of the need to obtain additional data to prove the violations.

CAMRA's limitations on using community air monitors for enforcement could mean more air pollution violations to go unchecked, contrary to the purpose of air pollution regulations and to the detriment of public health. The LDEQ has been audited and criticized for its enforcement shortcomings. The LDEQ's history of low enforcement levels of the Clean Air Act has resulted in petitions from concerned residents to withdraw its enforcement authority under the Clean Air Act, and return that authority to the federal government.[62] A report by the EPA found Louisiana has the lowest enforcement activity levels compared to other states in Region 6 and ranked in the lowest quartile for the Clean Air Act.[63] Further, a 2021 audit of the LDEQ conducted by the Louisiana Legislative Auditor found that the time it took for the LDEQ to issue enforcement actions after a known violation more than doubled between fiscal year 2015 and 2019, from nearly 10 months to nearly 20 months.[64] The same audit also found it could take as long as 9 years from the time a company was cited for emissions violations before it was ordered to pay a fine or required to pay for a mitigation project.[65] Citizen enforcement in these situations is critical for the protection of residents and the enforcement of air regulations.

VI. CAMRA's limitations on use of non-EPA monitors will negatively impact public health in disadvantaged communities and negatively impact future research on air pollution and health.

CAMRA will almost certainly curtail community air monitoring efforts in the state. The adverse consequences to both public health and important research efforts could be devastating.

a. Because air pollution research uses community air monitoring data, CAMRA's restrictions will have a chilling effect on air pollution research in Louisiana

[62] U.S. Env't Prot. Agency, No. 12-P-0113, *EPA Must Improve Oversight of State Enforcement*, 16 (2012).
[63] *Id.*
[64] *Monitoring and Enforcement of Air Quality*, *supra* note 27.
[65] *Id.*; Schleifstein, *supra* note 27.

While some research relies upon the federal monitoring system, much of air pollution research uses community air monitoring data. CAMRA constrains air pollution research that uses low-cost monitors from being shared publicly.[66] This prohibition on public dissemination of air pollution monitoring data from low-cost monitoring technology could prevent valuable research by barring publication of research studies with data showing possible non-compliance. CAMRA appears to subject researchers collecting data in Louisiana to the CAMRA penalties, which would have a chilling effect on air pollution research in the state, and could end research entirely.

CAMRA does permit data to be used for purposes other than enforcement, but only if it is analyzed by a laboratory approved by the Louisiana Environmental Laboratory Accreditation Program, or includes quality assurance certification of methods or equipment. Requiring analysis through a specific lab network adds yet another hurdle under CAMRA that researchers must overcome to disseminate important health data, and that difficulty will likely limit or end research undertaken in an effort to protect human health.

b. CAMRA may adversely impact public health in rural areas, lower income communities, and minority populations

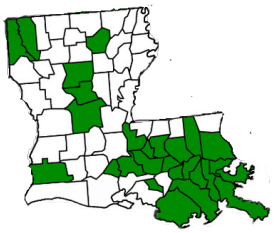
As discussed *supra*, official EPA-approved monitoring networks have a limited geographic reach because of their high per-monitor and operating costs.[67] More than half of U.S. counties are air quality monitoring "deserts," lacking even a single monitoring station.[68] Further, multiple studies indicate there are systemic racial and ethnic disparities in the spatial distribution

[66] LA Rev Stat §30:2381.6; LA Rev Stat §30:2381.9.
[67] Cromar et al., *supra* note 45, at 1208.
[68] Roque, *supra* note 6, at 1.

of federal air quality monitors, with block groups with a higher proportion of Native Hawaiian, American Indian and Alaskan Native residents facing the greatest disparities in monitoring.[69]

Concerningly, these same groups with decreased monitoring are also the communities that suffer from air pollution and related health risks the most. "Racial and ethnic minorities and lower-income communities in the U.S. face on average 15 percent more exposure to air pollution, and related health risks than other populations".[70] In Louisiana, 9.7% of residents suffer from asthma, and 8.5% of residents have chronic obstructive pulmonary disease.[71]

As of 2024, in Louisiana, over 30 parishes are "monitoring deserts,"[72] without a single active federal monitoring site, and CAMRA will limit access to critical public health information without community air monitoring. This map, taken from a study in the Proceedings of the National Academy of Sciences, shows parishes that lack air monitoring ("monitoring deserts") in white.[73]



In these monitoring deserts, simple measurements of pollution exposure are essential, and can be nearly as impactful as regulatory-quality data. The limitations on access to this community air quality data in rural and lower income communities in Louisiana will be detrimental to residents in these communities that already suffer from poor air quality.

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[69] Brenna C. Kelly et al., Racial and Ethnic Disparities in Regulatory Air Quality Monitor Locations in the US, JAMA Netw. Open, Dec. 2024, at 1, 7; see also Roque, *supra* note 6, at 1.

[70] Bradbury, *supra* note 32.

[71] *State Estimates of COPD*, Centers for Diseases Control and Prevention (May 15, 2024), https://www.cdc.gov/copd/php/case-reporting/state-level-estimates-of-copd.html; *Most Recent State or Territory Asthma Data*, Centers for Disease Control and Prevention (May 10, 2023), https://www.cdc.gov/asthma/most_recent_data_states.htm.

[72] Roque, *supra* note 6, at 1.

[73] Roque, *supra* note 6, at Fig. 3.

An example of one of these communities is St. John the Baptist Parish, a low-income, African American community. The parish was home of the Denka Performance Elastomer plant, the only facility in the U.S. still producing chloroprene until it suspended operations earlier this year.[74] Residents near the plant have the highest lifetime cancer risk in the country.[75]

c. CAMRA sets a negative precedent for using community science data in other environmental issues like volunteer water quality monitoring

Amici also have significant concerns that CAMRA sets a negative precedent for other participatory science efforts undertaken by citizens and health researchers. Laws like CAMRA that limit gathering important data and publishing the results hurts air quality and penalizes citizens for doing it. If this law stands, it is unclear how far the impacts could stretch to other types of data and information gathering. Water quality, for example, could be subjected to these same types of limitations, and wreak havoc on public health and research efforts to understand environmental changes impacting water quality and long-term effects of temperature changes in the Gulf. Louisiana residents need water quality information, just like they need air quality information, and if CAMRA stands, its future implications could hurt citizens across the state.

CONCLUSION

For the reasons set forth above, the Amici believe CAMRA hurts public health and should be overturned. Community air monitoring fills significant gaps in the national air monitoring network and is critical to ensuring all communities have access to data to protect their health.

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[74] EPA, No. 21-P-0129, *EPA Should Conduct New Residual Risk and Technology Reviews for Chloroprene-and Ethylene Oxide-Emitting Source Categories to Protect Human Health* 6 (2021).
[75] *Id.* at 25.

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