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Environmental Protection Agency
EPA Docket Center
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Mail Code 28221T
1200 Pennsylvania Ave, NW
Washington, DC 20460
a-and-r-docket@epa.gov

Re: Comments on Proposed Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors Voluntary Remand Response and 5- Year Review Large Municipal Waste Incinerator Standards [EPA–HQ–OAR–2017–0183]

On behalf of East Yard Communities for Environmental Justice, Ironbound Community Corporation, Sierra Club, South Baltimore Community Land Trust, Clean Water Action, and the Environmental Integrity Project ("EIP") (collectively, "Commenters"), Earthjustice and EIP submit these comments on the U.S. Environmental Protection Agency's ("EPA's") proposed revisions to its emission standards for Large Municipal Waste Combustors ("LMWCs") under Section 129 of the Clean Air Act ("CAA" or "the Act"), 89 Fed. Reg. 4,243 ("Proposed Rule"). These comments incorporate the comments and attachments thereto that many of the above groups submitted on June 6, 2023 in EPA's pre-rulemaking docket ("2023 Comments," attached as Exhibit 1), as well as the March 25, 2024 report of Bruce Buckheit ("Buckheit Report," attached as Exhibit 2).[1]

[1] East Yard Communities for Environmental Justice et al., Pre-Rulemaking Comments on Large Municipal Waste Incinerator Standards (June 6, 2023) [hereinafter 2023 Comments] (attached as Exhibit 1); Bruce C. Buckheit, *Calculation of MACT Floors in EPA's LMWC Proposal* (Mar. 25, 2024) [hereinafter Buckheit Report] (attached as Exhibit 2).

We strongly support EPA's proposed revisions that would lower emission limits, remove illegal exemptions during startup, shutdown, and malfunction periods, and require electronic reporting. These improvements to the current rules are required by the CAA, and are improvements that EPA should have made three decades ago.

However, as explained below, there are a number of ways that the Proposed Rule can be further improved to better protect the environmental justice communities that live in the shadow of large waste incinerators. Many of these changes are required by the CAA and are compelled by this Administration's commitments to environmental justice communities and pollution reduction. We therefore urge EPA to finalize a revised rule that is as strong as possible, as outlined below.

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I. LARGE INCINERATORS HARM ENVIRONMENTAL JUSTICE COMMUNITIES.

As noted in our 2023 comments, incinerators are predominantly located in environmental justice ("EJ") communities that face disproportionate and cumulative environmental impacts.[2] 79% of the U.S.'s municipal solid waste incinerators are located within EJ communities.[3] In the demographic analysis for the Proposed Rule, EPA finds that people of color make up 52% of the population within 5 kilometers of LMWCs, compared to 40% of the total U.S. population.[4] Additionally, EPA notes that the percentages of people below the poverty level and people over 25 without high school diplomas are higher within 5 kilometers of LMWCs than the national average.[5]

Further, LMWCs are often one among many sources of risk for the communities in which they are located. For example, our analysis finds that 75% of LMWC facilities are located in states that EPA has identified as those with the highest potential lead risk – and 18% of those facilities are located in the county with the highest potential lead risk within those states.[6] Similarly, 56% of the U.S.'s LMWC facilities are located within three miles of a Justice40 tract and 30% of LMWCs are located directly within a Justice40 tract (*i.e.*, a community that this Administration's Justice40 environmental justice initiative defines as disadvantaged according to criteria like disproportionate pollution exposures, climate change risks, and health burdens).[7] The maps below show some examples of this, with the majority of LMWC facilities either located within a Justice40 tract (indicated by a red dot), within one mile of a Justice40 tract (orange dot), or within three miles of a Justice40 tract (yellow dot), and only a handful of facilities further than three miles from a Justice40 tract (white dot).[8]

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[2] 2023 Comments, *supra* note 1 at 2-4 (ex. 1).
[3] Ana Isabel Baptista & Adrienne Perovich, Tishman Environment and Design Center, *U.S. Municipal Solid Waste Incinerators: An Industry in Decline* 35-37 (May 2019), https://www.no-burn.org/wp-content/uploads/2021/03/CR_GaiaReportFinal_05.21-1.pdf [hereinafter Tishman Center Report] (Attachment 7 to Exhibit 1).
[4] SC&A Inc., *Analysis of Demographic Factors For Populations Living Near Large Municipal Waste Combustors* at 8 (June 26, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0022).
[5] Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors Voluntary Remand Response and 5-Year Review, 89 Fed. Reg. 4,243, 4,263 (Jan. 23, 2024) [hereinafter Proposed Rule].
[6] *See* Valerie G. Zartarian et al., *A U.S. Lead Exposure Hotspots Analysis*, 58 Envtl. Science & Technology 3311 (Feb. 2024) (attached as Exhibit 3); Eastern Research Group, Inc., *1990, 2009, and Current (2022) Inventories of Large Municipal Waste Combustors (MWCs)*, (Sept. 6, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0009).
[7] Earthjustice, Excel Sheet Analyzing LMWC Proximity to Justice40 Tracts (attached as Exhibit 4); *Justice40 by Number of Categories Map November 2022*, ESRI Demographics, https://www.arcgis.com/home/item.html?id=ee9ddbc95520442482cd511f9170663a [https://perma.cc/NDC7-QHHY] (last visited Mar. 22, 2024).
[8] Earthjustice, Maps overlaying LMWC Facility Locations on Justice40 Tracts, based upon data from Exhibit 4.

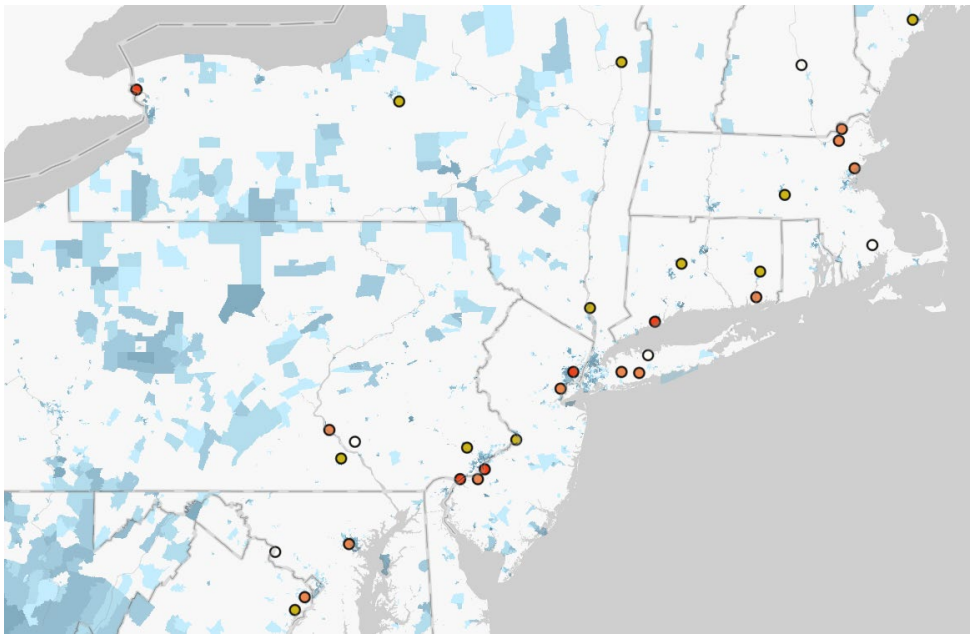

Figure 1: Map of Northeastern United States indicating LMWC proximity to Justice40 Tracts.

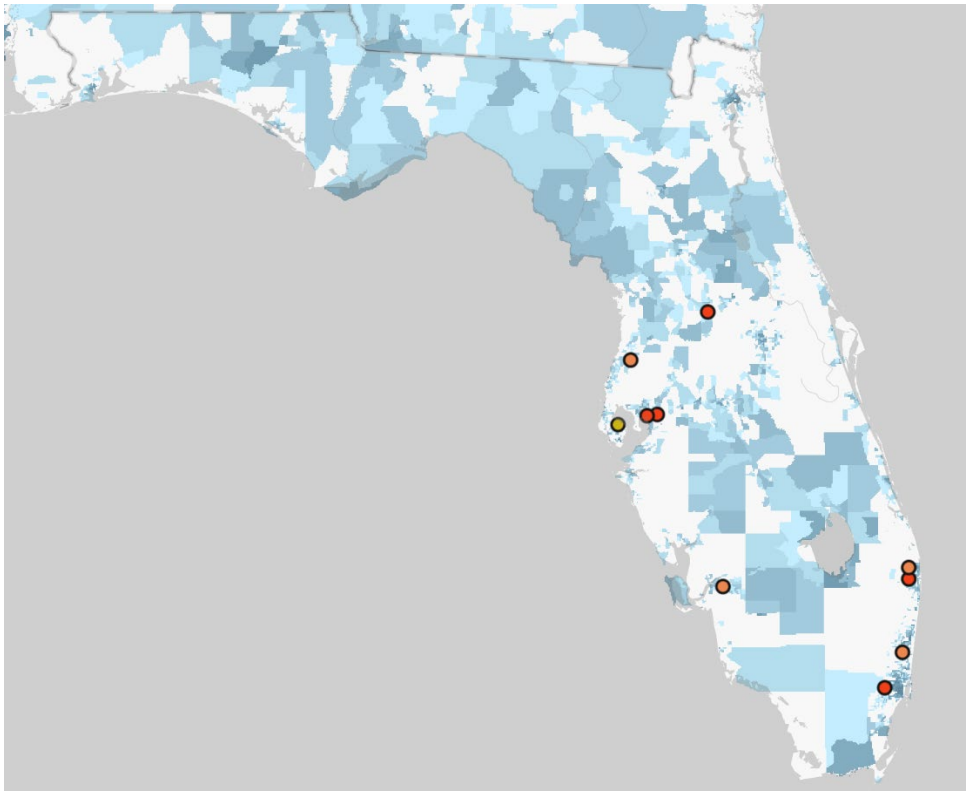

Figure 2: Map of Florida indicating LMWC proximity to Justice40 Tracts.

The siting and health burden of incinerators on EJ communities has long been a concern for the environmental justice movement.[9] Numerous organizations, including the National Research Council, have completed studies demonstrating the negative health effects incinerators have on the communities that they border.[10] More recently, studies have shown that air pollution associated with incinerators has contaminated nearby vegetation and free-range chicken eggs (which are recognized as a good indicator of soil contamination) with dioxins and PCBs.[11] As a result of these studies, French health authorities have warned residents in Paris and surrounding areas to not eat eggs from hens that have foraged on soil within municipalities surrounding the Paris incinerator because the eggs likely contain dioxins, PCBs, and PFAS.[12]

Congress recognized the unique threats posed by incinerators and therefore imposed duties on EPA to regulate emissions from incinerators above and beyond EPA's duties to address other air pollution sources. The 1990 Clean Air Act amendments added a new section of the CAA devoted solely to incinerator regulation (Section 129), requiring EPA to not only set emissions limits for incinerators at a level at least as stringent as the actual emissions from the best-performing (*i.e.*, least-emitting) incinerators,[13] but also setting forth nine pollutants that EPA must regulate, requiring EPA to set siting requirements for new units to minimize public health impacts, and requiring EPA to review and revise these standards every five years (faster than the schedule under Sections 111 and 112).[14] In addition, of all the Section 129 facilities, Congress was most concerned about LMWCs (the facilities covered by this Proposed Rule) and required EPA to set emissions standards for LMWCs in just 12 months, faster than any other incinerator regulation timeline.[15]

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[9] *Environmental Justice Timeline*, EPA, https://www.epa.gov/environmentaljustice/environmental-justice-timeline [https://perma.cc/J2XD-V5EM] (last updated June 27, 2023) (noting that Dr. Robert Bullard's 1983 Solid Waste Sites and the Houston Black Community found that "80 percent of [Houston] city-owned garbage incinerators . . . were sited in black neighborhoods, although African Americans made up only 25 percent of the city's population.").

[10] *See* National Research Council Committee on Health Effects of Waste Incineration, *Waste Incineration and Public Health* (2000), https://www.ncbi.nlm.nih.gov/books/NBK233633/ [hereinafter NRC Study] (Attachment 2 to Exhibit 1); Jean-François Viel et al., *Soft-tissue Sarcoma and Non-Hodgkin's Lymphoma Clusters Around a Municipal Solid Waste Incinerator with High Dioxin Emission Levels*, 152 Am. J. Epidemiology 13–19 (2000) (Attachment 3 to Exhibit 1); Silvia Candela et al., *Air Pollution from Incinerators and Reproductive Outcomes: A Multisite Study*, 24 Epidemiology 863–70 (2013) (Attachment 4 to Exhibit 1); Silvia Candela et al., *Exposure to Emissions from Municipal Solid Waste Incinerators and Miscarriages: A Multisite Study of the MONITER Project*, 78 Env't Int. 51–60 (2015) (Attachment 5 to Exhibit 1); Yoshihiro Miyake et al., *Relationship Between Distance of Schools from the Nearest Municipal Waste Incineration Plant and Child Health in Japan*, 20 Eur. J. Epidemiology 1023–29 (2005) (Attachment 6 to Exhibit 1); Tishman Center Report, *supra* note 3 at 35-37 (attach. 7 to ex. 1).

[11] Jindrich Petrlik et al., *Monitoring dioxins and PCBs in eggs as sensitive indicators for environmental pollution and global contaminated sites and recommendations for reducing and controlling releases and exposure*, 8 Emerging Contaminants 254 (2022) (attached as Exhibit 5); ToxicoWatch, *Hidden emissions waste incinerator IVRY-PARIS XIII* (Dec. 2023), https://www.toxicowatch.org/_files/ugd/8b2c54_f4aa1e85442f4ef18d12fa56e0fb5dbf.pdf (attached as Exhibit 6).

[12] Ian Smith, *Millions in France warned not to eat eggs from backyard chickens due to forever chemical pollution*, EuroNews (Nov. 21, 2023) https://www.euronews.com/green/2023/11/21/millions-in-france-warned-not-to-eat-eggs-from-backyard-chickens-due-to-forever-chemical-p (attached as Exhibit 7).

[13] 42 U.S.C. § 7429(a)(2).

[14] *Id*. § 7429(a)(3), (4), (5).

[15] *Id*. § 7429(a)(1)(B).

This Administration's environmental justice goals and responsibilities also compel EPA to more fully address pollution from incinerators. Multiple executive orders require EPA to address disproportionate environmental impacts on already overburdened communities.[16] Further, EPA has repeatedly committed to achieving environmental justice, stating that it is a "centerpiece of the [A]gency's mission."[17] Recent EPA guidance recognizes that it is appropriate to consider, as part of the Maximum Achievable Control Technology ("MACT") analysis, "impacts on communities with environmental justice concerns, particularly in urban areas where there may be a large number of industrial sources . . . located close together."[18] And EPA guidance also notes that the "siting requirements" provisions that EPA must promulgate under Section 129 "could include environmental justice considerations, such as impacts on or participation in decision-making by communities with environmental justice concerns" but "[t]he regulatory text of the siting requirements does not currently require such consideration; however, EPA could consider revising the regulations to do so."[19] EPA also notes that "[r]egulations implementing this [siting requirement] provision could be revised to incorporate a cumulative risk assessment into the siting requirements" that would, at a minimum, cover the pollutants listed under Section 129.[20]

Despite Congress's clear directive to swiftly and comprehensively address incinerator emissions, and despite EPA's own recognition of incinerators as facilities with environmental justice impacts, EPA has never met the deadlines required under CAA Section 129. EPA issued its first standards for LMWCs four years after the mandatory 1991 deadline had passed.[21] Then it issued its first and only revision (until now) six years after the mandatory deadline for review and revision had passed.[22] This proposed rule comes nearly thirteen years after EPA's mandatory deadline for reviewing and revising the standards again expired. Importantly, EPA has also never

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[16] Revitalizing Our Nation's Commitment to Environmental Justice for All, Exec. Order No. 14096, 88 Fed. Reg. 25,251, 25,253-54 (Apr. 21, 2023) (stating that federal agencies must "identify, analyze, and address historical inequities, systemic barriers, or actions related to any Federal regulation, policy, or practice that impair the ability of communities with environmental justice concerns to achieve or maintain a healthy and sustainable environment"); Tackling the Climate Crisis at Home and Abroad, Exec. Order No. 14008, 86 Fed. Reg. 7,619, 7,629 (Jan. 27, 2021) (stating that federal agencies shall make "achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts"); Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898, 59 Fed. Reg. 7,629, 7,629 (Feb. 11, 1994) ("each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations").

[17] EPA, *E.O. 13985 Equity Action Plan* at 2 (Apr. 2022), https://www.epa.gov/system/files/documents/2022-04/epa_equityactionplan_april2022_508.pdf (Attachment 10 to Exhibit 1).

[18] EPA, *EPA Legal Tools to Advance Environmental Justice* at 14 (May 2022), https://www.epa.gov/system/files/documents/2022-05/EJ%20Legal%20Tools%20May%202022%20FINAL.pdf (Attachment 25 to Exhibit 1).

[19] *Id.* at 12-13.

[20] EPA, *EPA Legal Tools to Advance Environmental Justice: Cumulative Impacts Addendum* at 10 (Jan. 2023), https://www.epa.gov/system/files/documents/2022-12/bh508-Cumulative%20Impacts%20Addendum%20Final%202022-11-28.pdf (Attachment 95 to Exhibit 1).

[21] Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources, 60 Fed. Reg. 65,387 (Dec. 19, 1995) [hereinafter 1995 LMWC Standards].

[22] Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors, 71 Fed. Reg. 27,324 (May 10, 2006) [hereinafter 2006 LMWC Standards].

issued standards protecting overburdened communities from the effects of new LMWC units, despite Congress's clear mandate that EPA issue siting requirements and the Agency's stated interest in addressing the cumulative impacts of multiple pollution sources on overburdened communities.[23] EPA's proposed rule is a step in the right direction, but in order for the Agency to meet its legal duties and environmental justice goals, the Agency should make the changes described in the following sections of these comments.

II. EPA MUST FURTHER LOWER LMWC EMISSION LIMITS IN ORDER TO COMPLY WITH THE CLEAN AIR ACT.

A. EPA Must Recalculate the MACT Floors and Complete the Five-Year Review Before Moving on to a Residual Risk Analysis.

We applaud EPA's correct decision in the Proposed Rule to recalculate the LMWC MACT floors and do away with the current lenient standards, which were improperly calculated and have been subjecting incinerator-adjacent communities to unnecessarily high levels of pollution for decades. As the Proposed Rule recognizes, EPA's initial MACT floor analysis conducted in the 1995 rulemaking needs to be "correct[ed] for errors[.]"[24] While the CAA requires MACT floors to be "based on the emission level actually *achieved* by the best performers (those with the lowest emission levels),"[25] the 1995 floors were based on factors unrelated to actual performance – like control technologies (for new units) and State air permit limits (for existing units) – with no explanation tying these levels to the actual performance of the best controlled unit(s).[26] Numerous D.C. Circuit cases make clear that it is impermissible to base MACT floors on control technology or State permit limits without a reasonable explanation tying these factors to actual performance.[27] Notwithstanding these cases, EPA chose not to recalculate the improperly calculated 1995 MACT Floors in its 2006 revision to the LMWC rule,[28] even while recognizing that actual incinerator emissions were "more than 100 times [lower] than . . . the level that their State permits allowed."[29]

But just one year later, in 2007, when faced with the prospect of defending these MACT standards in court, EPA admitted that the standards were "deficien[t]" and "not consistent" with

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[23] *Cumulative Impacts Research*, EPA, https://www.epa.gov/healthresearch/cumulative-impacts-research (last updated Jan. 11, 2024) (attached as Exhibit 8).
[24] Proposed Rule, 89 Fed. Reg. at 4,251-52.
[25] *Sierra Club v. EPA*, 479 F.3d 875, 880 (D.C. Cir. 2007) (discussing MACT floors under CAA Section 112, which are generally analogous to Section 129 MACT floors).
[26] 1995 LMWC Standards, 60 Fed. Reg. at 65,395–97, 65,401; Standards of Performance for New Stationary Sources: Municipal Waste Combustors, 59 Fed. Reg. 48,198, 48,214–15 (proposed Sept. 20, 1994); Emission Guidelines: Municipal Waste Combustors, 59 Fed. Reg. 48,228, 48,244–45 (proposed Sept. 20, 1994).
[27] *See Sierra Club v. EPA*, 479 F.3d at 880–83 (finding impermissible, under CAA Section 112, EPA's brick and ceramics kiln MACT floors based on control technology); *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 953–54 (D.C. Cir. 2004) (finding impermissible EPA's small municipal waste combustor MACT floors based on State air permits and control technology); *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d 855, 861–66 (D.C. Cir. 2001) (finding impermissible, under CAA Section 112, EPA's hazardous waste incinerator MACT floors based on control technology); *Sierra Club v. EPA*, 167 F.3d 658, 663-65 (D.C. Cir. 1999) (finding impermissible EPA's medical waste incinerator MACT floors based on State air permits and control technology).
[28] *See* 2006 LMWC Standards, 71 Fed. Reg. at 27,327-28 (declining to reconsider the 1995 MACT Floors).
[29] Comments of Earthjustice on 2005 LMWC Standards Proposed Rule at 4 (Exhibit A to Exhibit 1 of Mandamus Petition [attach. 8 to ex. 1]).

the case law, and therefore must be "re-analyze[d]."[30] In 2008, the D.C. Circuit remanded the LMWC standards to EPA for the Agency to do just that.[31] After over a dozen years with no apparent movement by EPA towards completing this re-analysis, some of the undersigned Commenters initiated legal actions which resulted in a Consent Decree requiring EPA to finalize just such a rulemaking by November 2024.[32]

Now, some 15 years after EPA promised to fix the errors of the current MACT floors, and nearly 30 years after those erroneous MACT floors were first set, EPA is finally proposing a rulemaking to correct the MACT floors using a method that complies with the CAA, together with a five-year review that is itself over a decade late. EPA estimates that its newly proposed standards would result in some 14,000 tons of emission reductions per year.[33] These are emission reductions that incinerator-adjacent communities *could* have enjoyed for the past three decades if EPA had properly calculated the MACT floors the first time. That adds up to some 400,000 tons of pollution that these communities should not have been exposed to. EPA must finalize this revision to the LMWC Standards by the Consent Decree deadline not only to comply with the Consent Decree but also so that communities need not suffer this pointless pollution exposure any longer.

And once EPA corrects the MACT standards and completes the 5-year review through this rulemaking, EPA should promptly move on to the next step in the CAA process, a "residual risk" analysis of whether these emission limits should be further strengthened to "provide an ample margin of safety to protect public health."[34] The residual risk analysis is an important step in the CAA standard-setting process that ensures that the human health effects of EPA's emission standards are not lost in the shuffle of the other CAA factors like actual emissions and technological feasibility. But given that communities have already been subject to hundreds of thousands of tons of additional pollution because of EPA's failure to properly set MACT floors the first time, EPA should prioritize fixing this first step in the standard-setting process by the Consent Decree deadline. Once the first step is finalized, EPA should then conduct a robust residual-risk analysis to ensure further protections of public health.

The CAA does not allow EPA to set residual risk standards before or instead of first correcting the MACT floors, as industry commenters are urging EPA to do.[35] The CAA is clear

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[30] EPA Mot. for Voluntary Remand, *Sierra Club v. EPA*, No. 06-1250 at 7-10 (D.C. Cir., Nov. 9, 2007) (Exhibit 2 to Mandamus Petition [attach. 8 to ex. 1]) (noting that *Sierra Club v. EPA*, 479 F.3d at 875 "holds that EPA cannot base its floors exclusively on technology"); EPA's Reply in Further Supp. of Its Mot. for Voluntary Remand, *Sierra Club v. EPA*, No. 06-1250 at 3 (D.C. Cir. Dec. 6, 2007) (Exhibit 3 to Mandamus Petition [attach. 8 to ex. 1]) ("The primary reason for granting th[e] administrative petition is that the floors in the 1995 rule were calculated in a manner that is not consistent with the principles later set forth in *Northeast Maryland*. . . [discussing] floors . . . derived from state-issued permit limits. In reviewing the 1995 LMWC rule and the administrative petition to re-open that rulemaking, EPA recognized that the deficiency identified by the Court in *Northeast Maryland* is present in the 1995 LMWC rule.").

[31] Order, *Sierra Club v. EPA*, No. 06-1250 (D.C. Cir., Feb. 15, 2008) (Exhibit 4 to Mandamus Petition [attach. 8 to ex. 1]).

[32] *East Yard Cmtys. for Env't Just. v. EPA*, No. 22-94, ECF No. 30 (D.D.C. Nov. 9, 2023) (Consent Decree) (attached as Exhibit 9).

[33] Proposed Rule, 89 Fed. Reg. at 4,247.

[34] 42 U.S.C. §§ 7412(f), 7429(h)(3).

[35] *See East Yard v. EPA*, No. 22-94, ECF No. 26 (Sept. 22, 2023) (Mot. of the Loc. Gov't Coal. for Renewable Energy for Leave to File Br. *Amicus Curiae*); *id.* ECF No. 26-1 (Proposed Brief *Amicus Curiae*); *id.* ECF No. 26-2

that EPA is to consider residual risks and adjust MACT standards as necessary "within 8 years *after* promulgation" of the MACT standards.[36] Here, there are no valid MACT standards to adjust through the residual risk analysis since EPA has found that the initial floors analysis needs to be "correct[ed] for errors," so EPA is "functionally establishing new MACT floors for large MWCs on a blank slate."[37] As the D.C. Circuit has previously found, when EPA corrects erroneously calculated Section 129 MACT floors, "the emissions levels contained in the new rule are properly characterized . . . as the floor-setting that is the *initial* step in establishing emissions standards."[38] So it is premature, and contrary to the CAA, for EPA to skip to the second step (the residual risk analysis) when EPA has functionally yet to complete the initial step (MACT standards that comply with the CAA).

While industry has argued that that the CAA somehow compels EPA to conduct the residual risk prior to the five-year review, the D.C. District Court has already directly considered and rejected this argument.[39] Indeed, this interpretation is foreclosed by the structure of the CAA, which requires five-year reviews every five years after the setting of MACT standards, but requires residual-risk review up to eight or nine years after the MACT standards.[40] So Congress envisioned that a five-year review would *precede* residual-risk review. Any prior examples of EPA synchronizing these two reviews for Section 112 rules is not relevant to Section 129 because both reviews are on the same 8-year schedule under Section 112, as opposed to the differing 5 and 8-year schedules of Section 129.[41]

EPA should therefore move swiftly to correct its MACT standards first, and only after having done so, should move on to further lower those MACT standards in a residual-risk analysis.

B. EPA Must Not Employ Unwarranted Data Alterations When Recalculating the MACT Floors.

1. EPA Should Use the Most Reliable Emissions Data It Has, and Not Backdate its Emissions Data to 1990.

While EPA rightfully is proposing to recalculate the MACT floors using actual emissions data, the data that EPA is using is 2000-2009 emissions numbers which EPA then "adjusted" in

(Comments of Loc. Gov't Coal. for Renewable Energy); *id.* ECF No. 26-3 (Comments of Waste-to-Energy Ass'n); *Waste-to-Energy Ass'n v. EPA*, No. 23-2726, 2024 WL 1091806 (D.D.C. Mar. 13, 2024).

[36] 42 U.S.C. § 7412(f)(2).

[37] Proposed Rule, 89 Fed. Reg. at 4,251-52.

[38] *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d 420, 426 (D.C. Cir. 2011) (emphasis added).

[39] *Waste-to-Energy Ass'n v. EPA*, No. 23-2726, 2023 WL 7407303 at *3 (D.D.C. Nov. 9, 2023) (citing *Nat'l Ass'n for Surface Fishing v. EPA*, 795 F.3d 1, 5 (D.C. Cir. 2015)) (noting that the five-year review and residual-risk review are "distinct duties" and that industry "cites no statutory provision requiring that the residual-risk review precede or be conducted simultaneously with the five-year review.").

[40] 42 U.S.C. §§ 7412(f)(2), 7429(a)(5).

[41] *See id.* § 7412(d)(6), (f) (both setting eight-year deadlines for EPA's review); *see also Blue Ridge Envtl. Def. League v. Pruitt*, 261 F. Supp. 3d 53, 56 (D.D.C. 2017) ("EPA's practice has been to combine its [Section 112] technology-based obligations under § 7412(d)(6) and its residual-risk obligations under § 7412(f)(2) in a single rulemaking").

an effort to estimate the presumed emissions of the same LMWC units in 1990.[42] As OMB commented during this rulemaking, this approach is "unusual" and an "aberration."[43] And the adjustment does not comply with the CAA. EPA should abandon these adjustments of the raw emissions data because it is unnecessary and will only result in weakening the MACT floors and, ultimately, the emission standards.

Across the board, EPA's adjustments to the 2000-2009 data result in 1990 numbers that are either the same or higher than the 2000-2009 emissions data, contributing to MACT floors that are higher and less protective than what would result from the raw data. For example, among the units that EPA identified as the top 12% of best performers (and which therefore determine the emission guideline ("EG") floors), are units where EPA "adjusted" the emissions data to be 1.67 times greater (NOx), 2 times greater (HCl and mercury) and a whopping 4.2 times greater (dioxin/furan) than what the raw data indicated actual emissions were.[44]

There is no need to adjust the raw data because the D.C. Circuit has already upheld EPA's use of post-compliance emissions data, especially where, as here, that data is the best and most reliable emissions data. As the Proposed Rule recognizes, when EPA corrected improperly set MACT floors for Section 129 standards for Hospital, Medical, and Infectious Waste Incinerators ("HMIWI"), it used post-compliance emissions data to recalculate the floors.[45] The Waste-to-Energy Association[46] and others challenged EPA's use of this data, but the D.C. Circuit upheld EPA's rule, clarifying that the court "most certainly did not mandate that EPA must proceed from the data set it had employed in the initial setting of the floors."[47] The Court found that EPA's decision to use post-compliance data was "a reasonable attempt at following the statute's direction to set the MACT floors at a level achieved by the best performing units," since this post-compliance data was "'the most reliable' data available."[48] The Court further noted that its remand of the prior rule "would hardly have been necessary" "[h]ad [the court] been satisfied of the adequacy of the regulations and the [prior] data set on which the regulations were based."[49]

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[42] Proposed Rule, 89 Fed. Reg. at 4,251-52; Mem. from Eastern Research Group, Inc. to Charlene Spells, EPA, MACT Floor Calculations for Large Municipal Waste Combustor Units at 4 (Sept. 13, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0015) [hereinafter MACT Floor Memo].

[43] OMB Passback 1, App. B to Interagency Review Materials (OMB) – Transmittal, Comments, Response, Clearance at pdf p. 29 (comment EO 128666) (Nov. 8, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0017) [hereinafter OMB Passback 1]. ("It seems unusual to use a 1995 baseline when conducting a MACT floor analysis. Can EPA explain in greater detail what analytic support it has for this approach? Is this typical for MACT floor analyses, or an aberration due to the legal circumstances?").

[44] *See* Eastern Research Group, Inc., MACT Floor Calculations for Large Municipal Waste Combustor Units, App. A: Stack Pollutants (Sept. 13, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0015) [hereinafter MACT Floor Memo App. A]; Eastern Research Group, Inc., MACT Floor Calculations for Large Municipal Waste Combustor Units, App. B: CEMS Pollutants (Sept. 13, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0015) [hereinafter MACT Floor Memo App. B] (showing adjusted NOx data for Mid-Connecticut units that are 1.67 times greater than the original 2000-2009 data, adjusted mercury data for Great River, Wilmarth, Detroit, and SPSA units that are twice the original data, adjusted HCl data for Great River that is twice as high, and adjusted dioxin/furan data for Huntsville, Kent, Marion, Stanislaus that are 4.2 times as high).

[45] Proposed Rule, 89 Fed. Reg. at 4,251-52.

[46] At the time, the Waste-to-Energy Association was named the Energy Recovery Council.

[47] *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d at 425.

[48] *Id.* at 426.

[49] *Id.* at 425.

The situation is the same here. The D.C. Circuit remanded EPA's 2006 LMWC Rule back to EPA, and EPA is under no obligation to rely on pre-compliance data that EPA itself has determined is not "adequa[te]" to calculate the MACT floors.[50] Nor must EPA attempt to recreate 1990 data using 2000-2009 data, since such makeshift 1990 data would no longer be the "'most reliable' data available,"[51] and would no longer represent *actual* emissions as required by the CAA.[52] Case law thus "most certainly d[oes] not mandate" that EPA must use makeshift 1990 data that EPA has concocted instead of actual emissions data that EPA *does* have.[53] And while the Proposed Rule distinguishes the HMIWI rulemaking by noting that today's LMWC units are "largely the same set of units" that existed in 1995, and thus differs from the HMIWI situation where most units there had shut down in post-compliance years,[54] that fact does not address the core infirmity of EPA foregoing the most reliable data to instead calculate LMWC floors using less reliable, concocted data.

Moreover, the five-year review that EPA is conducting in this rulemaking provides an independent reason for EPA to recalculate the MACT floors, thereby also providing an additional reason for EPA to use the post-1995 raw data. Section 129(a)(5) instructs EPA to "review, *and in accordance with this section and section [111] of this title*, revise" the emission standards every five years.[55] As the D.C. Circuit has held in similar contexts, this "in accordance with this section" language incorporates *all* of Section 129, including the MACT floor provisions of Section 129(a)(2).[56] EPA thus must recalculate the MACT floors for each Section 129 five-year review. And since the five-year review requires EPA to recalculate the MACT floors now, in 2024, EPA can use the most recent, most reliable data it has, and there is no need for EPA to enter a proverbial time machine and step into the shoes of the drafters of the 1995 rule.

In addressing this point, the Proposed Rule relies on EPA's past "approach" under Section 111 rules and case law about Section 112 rules to suggest that Section 129's five-year-review provision does not require EPA to recalculate the floors.[57] But, as the Proposed Rule admits, reviews under Section 129 are different than reviews under those other CAA sections.[58] Notably, Sections 111(b)(1)(B) and 112(d)(6) lack the "in accordance with this section" language of Section 129(a)(5) that expressly points to a CAA section or subsection that requires the setting of MACT Floors.[59] So case law about Section 112 is inapposite to the question about whether EPA must recalculate the floors for Section 129 rules.[60] And EPA's prior approach in

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[50] *See id.* at 425.
[51] *Id.* at 426.
[52] *See* 42 U.S.C. § 7429(a)(5).
[53] *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d at 425.
[54] Proposed Rule, 89 Fed. Reg. at 4,252.
[55] 42 U.S.C. § 7429(a)(5) (emphasis added).
[56] *See White Stallion Energy Ctr., LLC v. EPA*, 748 F.3d 1222, 1244 (D.C. Cir. 2014), *rev'd on other grounds sub nom. Michigan v. EPA*, 576 U.S. 743, 135 S. Ct. 2699, 192 L. Ed. 2d 674 (2015) (finding that EPA "acted properly" in interpreting the phrase "under this section" in Section 112(n) to refer to "the entirety of section 112," including the MACT-floor provisions of 112(d)).
[57] Proposed Rule, 89 Fed. Reg. at 4,248-49 & n. 4.
[58] *Id.* at n. 4 ("[T]he nature or scope of the periodic review under CAA section 112(d)(6) is different than under CAA section 129(a)(5). . .").
[59] 42 U.S.C. § 7429(a)(5); *see also id.* §§ 7411(b)(1)(B), 7412(d)(6).
[60] Similarly, while Section 112(d)(6) exhorts EPA to consider "developments in practices, processes, and control technologies" when reviewing Section 112 rules, 42 U.S.C. § 7412(d)(6); *see also Nat. Res. Def. Council v. E.P.A.*,

Section 111 reviews by itself cannot control how EPA conducts Section 129 reviews, since Section 129(a)(5) requires EPA to conduct Section 129 reviews in accordance with *both* Section 129 and 111, and not solely the latter.

In the alternative, EPA can use the language of Section 111, as incorporated by Section 129(a)(5), to recalculate the MACT floors from the perspective of 2024 and not 1995. As already noted, Section 129(a)(5) requires the five-year review to be in accordance with both Section 129 and Section 111, and Section 111 provides, in turn, "[w]hen implementation and enforcement of any requirement of this chapter indicate that emission limitations and percent reductions beyond those required by the standards promulgated under this section are achieved in practice, the Administrator shall, when revising standards promulgated under this section, consider the emission limitations and percent reductions achieved in practice."[61] Notably, this provision uses the same "achieved in practice" language of the Section 129 MACT floor provision.[62] The CAA thus plainly contemplates that EPA will use post-compliance emissions data to lower Section 129 floors since it requires EPA to consider the emission reductions "achieved in practice" "beyond those required by the [initial] standards"[63] when revising emission standards. And incinerators' own publicly available data shows that they are, indeed, achieving in practice emissions reduction up to 99% below the current, weak emission limits, therefore opening the door for EPA to recalculate the MACT floors under this provision.[64]

In addition, EPA's methodology to estimate 1990 emissions violates the CAA because EPA's "adjustments" are based entirely on assumptions about control technology efficiency that the D.C. Circuit has roundly rejected as an impermissible basis to calculate MACT floors. A multitude of factors aside from the type of control technology can affect emissions – factors such as "feedrates, various operating parameters, operator training and behavior, . . . variations between similar (but not identical) control devices," "the use of additional control techniques," "combustion quality and waste composition."[65] Indeed, EPA admits that "measurement variability (both sampling and analysis) and short term fluctuations in the emission levels that result from short-term changes in fuels, processes, combustion conditions, and controls" all affect emission rates.[66] It is because actual emissions are such a complex, multi-factor system that the D.C. Circuit has repeatedly held that EPA cannot ignore these other factors to instead set floors based solely on the type of control technology.[67] But that is exactly what the Proposed Rule does here to calculate 1990 emissions – it ignores the multitude of factors that affect

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529 F.3d 1077, 1084 (D.C. Cir. 2008) (finding this technology review to be the "core requirement" of review under Section 112(d)(6)), Section 129(a)(5) lacks any such specific language to guide EPA's review, further suggesting that review of Section 129 rules should be guided by the existing standards of Section 129 and 111, including the MACT floors.

[61] 42 U.S.C. § 7411(b)(1)(B).

[62] *Id.* § 7429(a)(2).

[63] *Id.* § 7411(b)(1)(B).

[64] *See* 2023 Comments, *supra* note 1 at 6 (ex. 1).

[65] *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d at 864–65.

[66] Mem. from Toni Jones, EPA regarding Use of the Upper Prediction Limit for Calculating MACT Floors at 2 (Dec. 12, 2014), *in* Rulemaking Docket EPA-HQ-OAR-2003-0119, https://www.regulations.gov/document/EPA-HQ-OAR-2003-0119-2711 (Attachment 21 to Exhibit 1).

[67] *See Sierra Club v. EPA*, 479 F.3d at 883 ("EPA's decision to base floors exclusively on technology even though non-technology factors affect emission levels thus violates the Act."); *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d at 864–65 ("[I]f factors other than [control] technology do indeed influence a source's performance, it is not sufficient that EPA considered sources using only well-designed and properly operated . . . controls.").

emissions to instead assume that the type of control technology is the only factor that affects the difference in actual emissions between 1990 and 2000-2009.[68]

For example, the Proposed Rule's supporting memos recognize that a single facility can change its emission rates of dioxins, mercury, HCl, and SO2 simply by changing activated carbon or lime injection rates, without the need for new control equipment.[69] So it is unrealistic for EPA's 1990 "adjustments" to ignore variability among these injection rates to instead assume uniform control efficiency for all units at all times with these control technologies. Similarly, EPA applies a single, across-the-board control efficiency for all units with fabric-filter baghouses all the time, but the document that EPA cites in support of this number itself states that "[s]everal factors determine fabric filter collection efficiency" such as "gas filtration velocity, particle characteristics, fabric characteristics, and cleaning mechanism."[70] EPA's control efficiency assumptions thus show an internal logical inconsistency that renders these assumptions arbitrary and unreasonable.

The Proposed Rule's logistical inconsistency continues when EPA asserts that, on the one hand, Congress wanted EPA to base the MACT floors on data that predates the 1990 Clean Air Act Amendments that enacted Section 129, while at the same time Congress wanted EPA to calculate the floors using the Upper Prediction Limit ("UPL") methodology that predicts future emissions.[71] EPA cannot have it both ways. If EPA must use 1990 data to calculate the floors, then it has no basis to apply the UPL methodology to calculate those same floors as well.

The sole rationale that EPA provides for using makeshift 1990 data is not supported by the caselaw or the structure of the CAA. EPA says that its decision to use the makeshift 1990 data "appropriately balances competing interest[s] in this rulemaking, by recognizing on one hand that LMWC facilities have taken steps to reduce emissions since the EPA first promulgated 1995 standards, and on the other hand the EPA's obligation to ensure MACT floor standards are set correctly for each source category regulated under CAA section 129."[72] But the D.C. Circuit has already directly considered industry's arguments about the supposed unfairness of calculating floors based on post-compliance data, and held that these supposed "problems caused by [EPA's] delay" in properly calculating the floors did not "affect the ultimate validity of the EPA's product."[73] And EPA's concern is particularly misplaced for the New Source Performance Standards ("NSPS") floors for new units, since new units, by definition, do not yet exist, so cannot possibly have already "taken steps to reduce emissions" under the previous standards.[74] So the NSPS floors do not present questions about post-compliance data at all, since new units have not even begun to operate or comply with previous emission limits.

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[68] *See* MACT Floor Memo App. A, *supra* note 44, A-3 (APCD Efficiencies).
[69] Mem. of Eastern Research Group, Inc. to Charlene Spells, EPA regarding Compliance Cost Analyses for Proposed Large MWC Rule Amendments at 4 (Sept. 18, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0014) [hereinafter Compliance Cost Memo].
[70] EPA, EPA-452/F-03-025, *Air Pollution Control Technology Fact Sheet: Fabric Filter - Pulse-Jet Cleaned Type* at 1, https://www.epa.gov/sites/default/files/2020-10/documents/ff-pulse.pdf (Attachment 43 to Exhibit 1).
[71] *See* Section II.B.3 below.
[72] Proposed Rule, 89 Fed. Reg. at 4,251.
[73] *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d at 425.
[74] Proposed Rule, 89 Fed. Reg. at 4,251.

2. EPA Should Include Data From Post-1995 Incinerators in its Analysis.

EPA's MACT floor approach also violates the CAA because it excludes existing, operating units from the MACT floor calculations. The CAA defines "existing solid waste incineration unit" to be any unit which is not a "new or modified solid waste incineration unit," and a "new" unit is in turn broadly defined as "a solid waste incineration unit the construction of which is commenced *after the Administrator proposes* requirements under this section establishing emissions standards *or other requirements which would be applicable to such unit* or a modified solid waste incineration unit."[75] The demarcation between "new" and "existing" LMWC units thus refreshes any time EPA proposes any requirement applicable to LMWC units – as applicable to this rulemaking, that would be any unit whose construction commenced before January 23, 2024. Indeed, this is the Proposed Rule's approach when determining which units will be subject to EGs as opposed to NSPS.[76] But this same group of "existing" units must also be the units considered in the MACT floor analysis, in which EPA must set emission standards for "*existing* units in a category . . . [based on] the average emissions limitation achieved by the best performing 12 percent of units *in the category*."[77] EPA's choice of a 1995 demarcation point when calculating the MACT Floors improperly excludes post-1995 existing units that EPA must include in the calculations.

This exclusion of existing units has real-world implications for the floors. For example, EPA's floors analysis completely ignores the Palm Beach Renewable Energy Facility II ("PBREF II"), which began operation in 2015 as one of, if not the, best-controlled LMWC facility in the country.[78] This facility would thus presumably have units that are the best performers, or at least among the top 12% best performers, for many regulated pollutants. Instead, the supposed top performers that EPA identifies are worse-controlled units, including incinerators that closed years ago like the Commerce Refuse-to-Energy Facility, which closed in 2018 (and is EPA's top performer for NOx and SO2), and the Maine Energy Recovery Company incinerator, which closed in 2012 (and is EPA's top performer for mercury).[79] This leads to the illogical result that the emission limits for new incinerators built in the future are determined by incinerators that shuttered down up to a decade in the past, instead of being determined by the better-controlled incinerators in operation today. For example, EPA's 140 ppm NOx NSPS floor based on the Commerce facility's emissions is nearly three times higher than even the Palm Beach facility's 50 ppm permit limit, let alone the actual emissions of the Palm Beach facility.[80] So we could expect the NOx floors for new and existing units to be much lower if EPA considered the Palm Beach data.

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[75] 42 U.S.C. § 7429(g)(2), (4) (emphasis added).
[76] Proposed Rule, 89 Fed. Reg. at 4,255.
[77] 42 U.S.C. § 7429(a)(2) (emphasis added).
[78] *See* Babcock & Wilcox Power Generation Group, Inc., *Palm Beach Renewable Energy Facility No. 2* at 2-3, https://www.swa.org/DocumentCenter/View/1607/REF2-Info-and-Specs [https://perma.cc/FX9H-E4TK].
[79] *See* MACT Floor Memo App. A, *supra* note 44; MACT Floor Memo App. B, *supra* note 44; Cole Rosengren, *After its first WTE facility closes, California down to 2*, WasteDive (Aug. 2, 2018), https://www.wastedive.com/news/california-first-wte-facility-closes/529164/ (attached as Exhibit 10); Sean Griffey, *Casella to sell MERC facility for $6.6 million; takes $40.7 million impairment charge*, WasteDive (June 28, 2012), https://www.wastedive.com/news/casella-to-sell-merc-facility-for-66-million-takes-407-million-impairm/37872/ (attached as Exhibit 11).
[80] *See* MACT Floor Memo App. B, *supra* note 44; Proposed Rule, 89 Fed. Reg. at 4,253 (tbl. 6), 4,255.

EPA should include emissions data from all operating incinerators like the Palm Beach Renewable Energy Facility II in its calculations of both the new and existing floors to ensure that the floors truly represent the emissions of the best-performing units.

3. EPA Should Avoid Unwarranted Numerical and Statistical Manipulations in its MACT Floor Calculations.

Both our 2023 Comments and the expert report of Bruce Buckheit (attached here and incorporated into these comments) urge EPA to avoid some of its prior, arbitrary MACT floor calculation methodologies that result in excessively high floors.[81] As those documents set forth, the Clean Air Act's mandate that EPA calculate floors based on the "average" emissions achieved by the best-performing units plainly means a simple calculation using the arithmetic average.[82] Unfortunately, instead of this common-sense approach, the Proposed Rule's floors calculation continues to employ unwarranted statistical methods to inflate the floors. EPA should make the following changes to its floor calculation methodology and adjust the floors accordingly before finalizing the rule.

First, EPA should round out to at least three significant digits, instead of two. The Proposed Rule rounds the calculated floors to two significant figures, without citing any basis for this practice.[83] As a result, the emission limits are all more lenient than the calculated floors. As an example, EPA calculated the NOx EG floor to be 130.5 ppm, but then rounded that up to 140 ppm.[84] Assuming EPA set the proposed limit at this level (instead of proposing a beyond-the-floor 110 ppm limit), the limit would be over 7% higher than the MACT floor. But the CAA says that the emission limits "shall not be less stringent" than the floors,[85] and "[t]here is no 'close enough' exception" to this requirement that allows EPA to set limits some 7% less stringent than the calculated floors.[86] Moreover, rounding at two significant digits has further downstream impacts because EPA's regulations allow compliance data to be "rounded to the same number of significant digits used in the applicable subpart to specify the emission limit[,]"[87] so monitored NOx emissions of 144.9 ppm, for example, would not violate a 140ppm limit, even though those actual emissions are 11% higher than the calculated floor. At the very least, EPA should set all LMWC limits based on rounding to at least three significant digits. This is consistent with EPA's Memo on Rounding and Significant Figures,[88] and here, for instance, would result in a much more reasonable level of 131 ppm.

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[81] 2023 Comments, *supra* note 1 at 12-16 (ex. 1); Buckheit Report, *supra* note 1 (ex. 2).
[82] *See* Buckheit Report, *supra* note 1 at 1-4 (ex. 2).
[83] Proposed Rule, 89 Fed. Reg. at 4,252, 53; MACT Floor Memo, *supra* note 42 at 6; *see also* Buckheit Report, *supra* note 1 at 23 (ex. 2).
[84] Proposed Rule, 89 Fed. Reg. at 4,253 (tbl. 6).
[85] 42 U.S.C. § 7429(a)(2).
[86] *Sierra Club v. EPA*, 884 F.3d 1185, 1196 (D.C. Cir. 2018) ("There is no 'close enough' exception to the requirement that EPA's MACT floors limit emissions to the full extent shown to be achievable by the best-performing sources").
[87] 40 C.F.R. § 60.13(h)(3).
[88] Mem. of William G. Laxton & John S. Seitz regarding Performance Test Calculation Guidelines at 2-3 (June 6, 1990), https://www.epa.gov/emc/technical-information-document-024-memo-rounding-and-significant-figures (attached as Exhibit 12) (instructing to "[c]onsider all emission standards to have at least two [significant figures] but no more than three [significant figures]").

Second, EPA should not inflate the NSPS cadmium limit based on unwarranted concerns about the representative detection limit. EPA calculates a floor of 0.492 ug/dscm for cadmium, but then more than doubles that to set the limit at 1.1 ug/dscm, or three times the representative detection limit.[89] EPA relies on a 2011 memo for this 1.1 ug/dscm figure, and that memo itself relies on a 2001 memo for the notion that regulatory limits should be set no lower than three times the representative detection level.[90] But testing laboratories of today are likely more precise than labs of a decade or two in the past, and the memo that EPA relies on itself recognizes that "[a]s rule writers collect additional data in the future and test methods and techniques improve, there will be a need to assess new data for representative method detection capabilities."[91] If EPA does not know the actual detection limits of the labs that tested the LMWC stack test data, it has no basis to conclude that those results were lower than the lab's detection limit. Furthermore, Covanta reports that at least 30 of its LMWC facilities have Cadmium emissions at least 96.9% below the current 35 ug/dscm limit, meaning that they are reporting figures below EPA's 1.1 ug/dscm threshold.[92] At the very least, EPA should consider the detection level of the actual tests used to determine the emissions data that is the basis of the floors, as opposed to generalized assumptions about the arithmetic mean of all reported detection levels thirteen years ago.[93] Moreover, while the 2011 memo asserts that emission levels below three times the representative detection level may "not account entirely for [emission] measurement variability,"[94] EPA does not explain why the UPL methodology, which is supposed to address variability issues, for some reason no longer does so at those levels.

Third¸ EPA should exclude inflated continuous emission monitoring systems ("CEMS") data corrected to 7% oxygen during startup, shutdown, and malfunction ("SSM") events. EPA's analysis states, with respect to the CO CEMS data used in the floor analysis, that the Agency "suspect[s] most of these [data] are reported during operational transition periods and do not reflect compliance conditions" and that "[r]emoving 7% O2 correction during startup/shutdown periods will likely abate the non-compliant readings to a large degree."[95] Indeed, the Proposed Rule notes that correcting CO values to 7% oxygen during SSM periods "artificially inflate[s]" CO values, and on that basis EPA is proposing to *not* require oxygen correction for the purpose of compliance determinations during SSM events.[96] This same principle would hold true for NOx and SO2 data corrected to 7% oxygen during SSM as well. But if this data is artificially inflated and unreliable for compliance purposes, then it is equally unreliable for the purpose of calculating the floors. EPA should therefore remove SSM data from its floor calculations.

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[89] Proposed Rule, 89 Fed. Reg. at 4,252 (tbl. 4).
[90] Letter from Peter Westlin, SPPD & Raymond Merrill, AQAD to SPPD Management and MACT Rule Writers, MACT Floor Memo App. D: Method Detection Limit Guidance at 1, n. 1 (Dec. 13, 2011) (Doc. ID EPA-HQ-OAR-2017-0183-0015) [hereinafter MACT Floor Memo App. D].
[91] *Id.* at 3.
[92] *See* 2023 Comments, *supra* note 1 at 6 & n. 30 (ex. 1).
[93] *See* MACT Floor Memo App. D, *supra* note 90 at 1.
[94] *Id.* at 1-2.
[95] Eastern Research Group, Inc., Emission Reduction Estimates for Existing Large MWCs App. A at 40 (Sept. 13, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0008) [hereinafter Emission Reduction Memo App. A].
[96] Proposed Rule, 89 Fed. Reg. at 4,256-57.

Fourth, EPA should not pool the variance of its top-performing units.[97] As the D.C. Circuit has stated, "the relevant question" in EPA's consideration of variability when calculating MACT floors is "whether the variability experienced by the best-performing sources can be estimated by relying on emissions data from the worst-performing sources."[98] But as noted in our 2023 Comments, a unit's variance is not random and is instead determined by a variety of factors within the LMWC operator's control, and thus falls within the CAA's definition of "performance."[99] Instead of using data from all units pooled together to calculate a single UPL value, EPA should instead calculate each unit's individual UPL value to then rank units only *after* the unit's variability is considered, not before. And here, there should be no concerns about calculating variance with a small data set – EPA has over 6,700 data points for the 6 stack test pollutants,[100] averaging roughly 8 data points per pollutant for each of the 144 LMWC units. Thus, EPA should have enough data points that it need not worry about having a limited dataset to calculate variability at the unit level,[101] and it should therefore do so instead of contravening the CAA and pooling all units' variability together.

Fifth, EPA should apply methods to ground truth the results of its UPL analysis to avoid absurd results, such as avoiding predicted *negative* emissions.[102] As EPA has explained, "the UPL equation produces a range of values that is *expected*," and a UPL calculated at a 99% percent confidence interval "produce[s] a range in which the average emissions levels of the best performing source or sources would be expected to fall 99 per cent [sic] of the time."[103] But in the Proposed Rule, EPA's UPL calculation produces 99% confidence interval ranges that go below zero and include *negative* numbers. For example, EPA's method predicts that lead emissions from new sources would range between 12.2 ug/dscm and *negative* 9.7 ug/dscm, and results for PM, HCl, and Hg similarly predict emissions that dip below zero.[104] But it is absurd to assume that incinerators burning waste are somehow removing pollutants from the ambient air, instead of contributing to pollution. Just like the lower bound of emissions is not limitless, but would be zero, the upper bound is similarly not limitless, but is instead proscribed by manufacturers' guarantees about the variability of their control technology. EPA should view absurd negative emissions results as an indication that something has gone wrong with the UPL

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[97] *See also* Buckheit Report, *supra* note 1 at 9-10 (ex. 2).
[98] *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d at 865; *see also Ne. Maryland Waste Disposal Auth. v. EPA*, 358 F.3d at 955 (noting that EPA "incorrectly rel[ied] on the emission variability of *all* MWCs that use the technology rather than on the variability of the *best performing* unit" (emphasis original)).
[99] 2023 Comments, *supra* note 1 at 14-15 (ex. 1).
[100] MACT Floor Memo App. A, *supra* note 44, Unscreened Data Tab.
[101] *See* Mem. from Brian Storey, USEPA regarding Approach for Applying the Upper Prediction Limit to Limited Datasets at 6 (July 2022), *in* Rulemaking Docket No. EPA-HQ-OAR-2017-0015, https://www.regulations.gov/document/EPA-HQ-OAR-2017-0015-0137 [hereinafter 2022 Limited Dataset Memo] (Attachment 19 to Exhibit 1) ("When a MACT floor for either existing or new sources is based on *fewer than 7 data points*, we will further evaluate each individual dataset in order to ensure that the uncertainty associated with a limited dataset does not cause the calculated emission limit to be so high that it does not reflect the average performance of the units upon which the limit is based after accounting for variability in the emissions of those units." (emphasis added)).
[102] *See* Buckheit Report, *supra* note 1 at 8-9 (ex. 2).
[103] *United States Sugar Corp. v. EPA*, 830 F.3d 579, 635 (D.C. Cir. 2016), *on reh'g en banc*, 671 Fed. Appx. 822 (D.C. Cir. 2016), *and on reh'g en banc in part*, 671 Fed. Appx. 824 (D.C. Cir. 2016).
[104] *See* Buckheit Report, *supra* note 1 at 8-9 (ex. 2).

equation and must be fixed. For example, EPA could recalculate using a smaller confidence interval that does not result in negative emissions – after all, as explained in our 2023 comments, the Proposed Rule's choice of the 99% confidence interval (as opposed to the 90th or 75th or 50th percentile) is baseless.[105] This general approach of using absurd results as a trigger to require improvements in the UPL equation is consistent with EPA's policy to refine the UPL equation whenever it produces the absurd result of NSPS floors that are *less* stringent than EG floors, such as because of limited data sets.[106]

Sixth, EPA should remove outlier data from its calculations before doing the UPL analysis. The data that EPA uses to calculate the floors here, for example, include at least three data points for the PM floor calculation and at least two data points for the HCl floor calculation that are much higher than all other data points for the same units, and are statistical outliers under a commonly used statistical test.[107] 2005 PM emissions from WIN Baltimore Unit 2, for example, are eight times higher than the average of all other PM emissions for that unit in EPA's data set.[108] The inclusion of these outliers increases the floor at all confidence interval levels.[109] Given the extreme difference between the outlier data points and the remaining data, EPA cannot assume that these outliers somehow are representative of actual emissions, instead of being caused by, for example, aberrations in the monitoring, the underlying calculations, or the reporting. EPA must therefore remove from the UPL calculation all outlier data that it cannot show is representative of actual emissions.

Seventh, if EPA is committing to the UPL analysis in its MACT floor-setting, it should similarly require UPL calculations to show compliance with the floors.[110] EPA has explained that the UPL methodology is necessary when setting MACT floors in order to "compensate for the lack of adequate emissions data" for pollutants that are monitored by annual stack tests,[111] because the CAA is concerned about a facility's emissions "on a consistent basis over time, not just at the single point in time during which emissions test data were collected."[112] Then the same holds true on the compliance side as well – a three-run stack test, by itself, is insufficient to show the contours of an entire year's actual emissions, so the UPL equations must be applied to stack test results in order to get a sense of emissions during non-tested periods. If the resulting figure is higher than the emission limit, then that is an instance of noncompliance. EPA must therefore require UPL calculations to show compliance, because it would be arbitrary for EPA to assert that the UPL is a reasonable method to predict emissions during non-tested periods solely for the purpose of setting emission limits but not for the purpose of complying with those

[105] 2023 Comments, *supra* note 1 at 16 (ex. 1).
[106] *See* 2022 Limited Dataset Memo, *supra* note 101 at 7 (attach. 19 to ex.1) (in certain situations, "the MACT floor analysis may yield an emission limit for that unit (i.e., the new source MACT floor) that is higher than the existing source MACT floor, which is an indicator that further analysis is warranted.").
[107] Buckheit Report, *supra* note 1 at 11-17 (ex. 2).
[108] *Id.*
[109] *Id.*
[110] *See id.* at 3-4, 24-25.
[111] *United States Sugar Corp.*, 830 F.3d at 598.
[112] Mem. from Brian Storey, EPA regarding Use of Upper Prediction Limit for Calculating MACT Floors at 5 (July 2022), *in* Rulemaking Docket No. EPA-HQ-OAR-2017-0015, https://www.regulations.gov/document/EPA-HQ-OAR-2017-0015-0138 (Attachment 18 to Exhibit 1).

limits.[113] If facilities are concerned that a three-run stack test does not produce enough data for a reliable UPL calculation, then they could always conduct more stack tests to get more data or, even better, continuously monitor their emissions so that we know what the actual emissions are and do not have to resort to statistical estimates.

Eighth, EPA should use a different methodology to calculate floors for CEMS pollutants that does not result in absurdly high confidence intervals.[114] The Proposed Rule calculates the floors for CEMS pollutants using the average of the highest annual CEMS readings.[115] This results in an effective confidence interval of 99.7th percentile for pollutants measured with 24-hour averages (*i.e.*, 364 days of compliance out of 365) and the 99.9954th percentile for pollutants measured with a 4-hour average (*i.e.*, 8,756 hours of compliance out of 8,760). If anything, EPA should ensure that the effective confidence interval of its CEMS floor calculation is no higher than the confidence interval that EPA deems appropriate for stack test pollutants – which, here, is the 99th percentile. As explained previously, EPA has no basis to use a confidence interval as high as the 99th percentile,[116] so it certainly has no basis to use even higher percentiles. If EPA does not have enough data now to determine what the 99th percentile (or lower) reading is for a unit each year, then EPA should ensure that the Proposed Rule requires that all CEMS data is submitted to EPA so that EPA can readjust the floor as necessary upon the next five-year review.

Ninth, EPA should not arbitrarily limit its data set. When describing the UPL calculation, the record says, "[a]nnual averages were used in the templates instead of individual runs because run data yielded a dataset too large for the UPL calculation to accommodate and, as mentioned above, provides consistency with how test data are/will be used to demonstrate compliance."[117] But EPA recognizes that larger datasets generally reduce the uncertainty of the UPL calculation and produce more reliable estimates of true performance.[118] If EPA's current Microsoft Excel template does not have enough rows to handle the full data set, that could easily be fixed by adding more rows. These UPL workbooks are designed to handle over 10,000 entries, but the full dataset here would be only 360 entries or so (*i.e.*, about 120 test data points per pollutant, times 3 runs per test). And if there is worry about potential inconsistency between units with a full dataset of individual runs and units with only annual average data, that inconsistency would become irrelevant if EPA were to calculate the variability of each unit instead of pooling the variability together, as we note above.

[113] *See Sierra Club v. EPA*, 884 F.3d at 1195 ("That mismatch—treating data EPA had viewed as not reliable at low emission levels as if it were affirmative support for a breakdown of the correlation at those levels—makes EPA's decision arbitrary and capricious.").
[114] *See* Buckheit Report, supra note 1 at 20-23 (ex. 2).
[115] MACT Floor Memo, *supra* note 42 at 6.
[116] *See* 2023 Comments, *supra* note 1 at 16 (ex. 1).
[117] MACT Floor Memo, *supra* note 42 at 5.
[118] *See* 2022 Limited Dataset Memo, *supra* note 101 at 6 (attach. 19 to ex. 1).

4. EPA Must Finalize Its Proposal to Remove the Alternative "Percent Reduction" Standards for SO2, Hg, and HCl.

EPA has proposed to no longer allow LMWC operators to comply with standards for certain pollutants using an alternative "percent reduction" option instead of meeting the numerical limit for that pollutant.[119] This option is currently available for compliance with limits for SO2, HCl, and Hg. Commenters support this proposed revision. In fact, EPA must finalize this proposed revision *because* these alternative limits are impermissible.

As explained in our 2023 Comments,[120] alternative percent reduction is impermissible under CAA Section 129's mandate requiring "numerical emission limits" that "shall not be less stringent" than the emissions achieved by either the best performing LMWC (for new units), or best performing 12% of units (for existing units).[121] In addition to contravening the plain language of the CAA, this alternative also allows LMWCs to emit more pollution. As the National Research Council ("NRC") has noted, the "percentage reduction" approach "allows for the possibility of higher emissions when waste stream inlet concentrations of a pollutant are high," and "effectively reduce[s] the impetus for implementing waste-sorting methods (for example, separation of mercury batteries) to reduce pollutant precursors in the waste stream and reduce inlet pollutant concentration."[122]

EPA must finalize its proposal to do away with these alternate emission standards when revising the LMWC Standards.

C. EPA Must Finalize Emission Limits that are More Stringent Than the Floors for All Pollutants.

1. Incinerators' Present-Day Emissions Achieved in Practice Compel EPA to Set Limits Lower Than the MACT Floors.

After properly recalculating the floors, EPA should move on to further lower the emission limits as the CAA demands. Section 129 instruct that MACT floors must be further reduced to beyond-the-floor levels that "reflect the maximum degree of reduction in emissions . . . that [EPA], taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing units in each category."[123] And as noted above, Section 129's five-year-review provision requires EPA to further review the emission limits "in accordance with" all of Section 129 and 111, including the instruction to "consider the emission limitations and percent reductions achieved in practice."[124]

Here, the incinerator industry's own data show that for nearly all pollutants, incinerators are already "achieving in practice" emissions lower than even EPA's proposed new limits. The table below uses Covanta's own reported emission performance (percent that current performance is below current EG limits) for 36 facilities (representing 100 units, or about 2/3 of

[119] Proposed Rule, 89. Fed. Reg. at 4,255-56.
[120] 2023 Comments, *supra* note 1 at 11-12 (ex. 1).
[121] 42 U.S.C. § 7429(a)(2), (4).
[122] NRC Study, *supra* note 10 at 192 (attach. 2 to ex. 1).
[123] 42 U.S.C. § 7429(a)(2).
[124] *Id.* §§ 7411(b)(1)(B), 7429(a)(5).

the current fleet) to provide a rough estimate of these facilities' current performance. The data show that, for *all* of the pollutants that EPA is not proposing to set limits lower than the EG floors, these facilities are *already* achieving emissions lower than the EG floors. Thus, considering "emission limitations and percent reductions achieved in practice,"[125] as the CAA requires, indicates that leaving the emission limits to floor levels is insufficient, and the limits can and should be further lowered to better protect communities.

Table 1: Covanta Self-Reported Emissions Compared to EPA's Proposed EG Limits[126]

Pollutant	Covanta Average Reported Emissions	EPA Proposed Limit
Cd (ug/dscm)	1.05	1.5
Pb (ug/dscm)	8	56
PM (mg/dscm)	2.5	7.4
Hg (ug/dscm)	2	12
PCDD/PCDF (ng/dscm)	2.1 (FF) 1.75 (ESP)	7.2
HCl (ppmdv)	6.67	13
SO2 (ppmdv)	7.83	20
NOx (ppmdv)	133.25 (MB/WW) 117.6 (MB/RC) 177.5 (RDF)	110
CO (ppmdv)	21 (MB/WW) 57.5 (MB/RC) 84 (RDF/S) 225 (RDF/SS)	100 (MB/WW) 110 (MB/RC) 110 (RDF/S) 250 (RDF/SS)

Instead of considering this statutorily required factor of emissions reductions achieved in practice, the Proposed Rule improperly prioritizes the "cost" factor – and more specifically, "cost-effectiveness."[127] But as explained in our 2023 Comments, the CAA directs EPA to consider whether lower limits are "achievable," not whether they are "cost-effective." While EPA may consider cost as one of many factors in determining the "maximum . . . achievable" emission reductions, the question EPA must ask is at what level of emission reductions costs become so prohibitive that no further emission reductions are "achievable." Even if some of those emission reductions do not provide as much bang-for-the-buck as EPA would like, so long as they are still achievable, then they are still required by the CAA. And though the D.C. Circuit has allowed EPA to consider cost-effectiveness in the beyond-the-floor context, it did so while conceding that "the statute [might] not compel EPA's approach" and that "EPA's reading

[125] *Id.* § 7411(b)(1)(B).
[126] *See* 2023 Comments, *supra* note 1 at 6 (ex. 1) (Citing emissions data obtained from the facility-specific webpages at https://www.covanta.com/facilities for the following facilities: Alexandria, Babylon, Bristol, Camden, Dade, Delaware Valley, Essex, Fairfax, H-Power, Harrisburg, Haverhill, Hempstead, Hillsborough, Huntington, Huntsville, Indianapolis, Lake, Lancaster, Lee, Long Beach, MacArthur, Marion, Montgomery, Niagara, Onondaga, Palm Beach, Pasco, Pinellas, Plymouth, SeConn, SEMASS, Stanislaus, Tulsa, Union, York (Attachment 11 to Exhibit 1)). HPOWER has 2 RDF/S units and 1 MB/WW unit, but for the purpose of this analysis we have classified the entire HPOWER facility as RDF/S.
[127] Proposed Rule, 89 Fed. Reg. at 4,250.

[might] not [be] the better reading."[128] EPA should not base its analysis solely on "cost-effectiveness," and instead follow the "better reading" of the CAA to consider "maximum . . . achievable" emissions reductions.

2. The Proposed Rule's Cost-Effectiveness Methodology is Irrational.

Aside from EPA's choice to prioritize cost-effectiveness above all other factors, many aspects of the methodology of the Proposed Rule's cost-effectiveness analysis are arbitrary.

First, for an unexplained reason, EPA considers the cost-effectiveness of limits lower than the floors for only two groups of Section 129 pollutants: NOx on the one hand, and all pollutants lumped together on the other.[129] So NOx ends up being the only pollutant whose cost-effectiveness of emission levels lower than the floors that EPA analyzes at the single-pollutant level. Nowhere does EPA explain why it does not analyze the cost-effectiveness of lowering the other, non-NOx limits at the individual pollutant level. And while the Proposed Rule appears to make a distinction between the NOx analysis being a five-year-review analysis and the analysis for the other pollutants being a beyond-the-floor analysis, there is no basis for EPA to ignore its duty to conduct the five-year review for all the pollutants and not solely NOx (nor is there a need, as explained above, for the beyond-the-floor analysis to be done from the standpoint of 1995 rule drafters and ignore any technological advancements since then).

Second, because EPA's beyond-the-floor cost-effectiveness analysis uses a baseline of the current, improperly calculated emission limits instead of a baseline of the newly proposed MACT floors, EPA's analysis improperly includes the costs for achieving the MACT floors. So, for example, EPA's cost numbers for the PM beyond-the-floor limit include baghouse installation and operation costs that facilities would have to incur anyway in order to comply with the new MACT floor limits.[130] But the CAA does not permit EPA to consider costs when setting the MACT floors,[131] and EPA cannot sneak in consideration of MACT-floor costs under the guise of a beyond-the-floor cost analysis. The operative costs of EPA's beyond-the-floor analysis are the costs needed to go *beyond* the floor, not the costs needed to comply with the floor itself.

These two infirmities – EPA's failure to analyze the cost-effectiveness of individual pollutants and EPA's consideration of MACT floor costs – work to hide beyond-the-floor measures that are cost-effective under EPA's own metrics. For example, the cost of going from the floor to the beyond-the-floor limit for particulates (PM, lead, cadmium) is *negative* $36,598/ton because it is *more* cost effective to go beyond the floor ($185,439/ton) than to stay

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[128] *Nat. Res. Def. Council v. EPA*, 749 F.3d 1055, 1061 (D.C. Cir. 2014).
[129] Proposed Rule, 89 Fed. Reg. at 4,254; Compliance Cost Memo, *supra* note 69 at 1.
[130] Eastern Research Group, Inc., Compliance Cost Analyses for Proposed Large MWC Rule Amendments App. A: 2023 LMWC Costs, A-1 (Control Measures By Unit) (Sept. 18, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0014) [hereinafter Compliance Cost Memo App. A].
[131] *See United States Sugar Corp.*, 830 F.3d at 594 ("When setting the MACT floor, the EPA considers *only* the performance of the cleanest sources in a category or subcategory; it does not take into account other factors, including the cost of putting a source in line with its better-performing counterparts.") (emphasis in original).

at the floor level ($222,037/ton).[132] Similarly, the cost of going from the floor to the beyond-the-floor limit for mercury and dioxin/furans is *negative* $23,228 because it is *more* cost effective to go beyond the floor ($362,298/ton) than to stay at the floor ($385,526/ton).[133] But since EPA's analysis impermissibly includes MACT-floor compliance costs and arbitrarily lumps these five pollutants together with the others to analyze cost-effectiveness of all the pollutants as a single chunk, these clear cost-savings of the lower limits are obscured. EPA cannot use its coarse analysis to leave on the table clear cost-effective emission reductions.

Third, EPA's cost-effectiveness analysis considers only one possible beyond-the-floor limit and ignores the entire range of limits available that might otherwise optimize cost-effectiveness. EPA's analysis defines the "beyond-the-floor" option to be the NSPS floor (*i.e.*, the performance of the top-performing unit) and then compares cost-effectiveness at that emission limit to cost-effectiveness of the EG floor (*i.e.*, the performance of the top 12% of units).[134] But EPA's analysis ignores the myriad of options between the EG floor and the NSPS floor – or, for that matter, limits even more stringent than the NSPS floor. This means that EPA is overlooking other possible beyond-the-floor limits that may be cost-effective under its own metrics. For example, for acid gases, EPA assumes that facilities can meet the EG MACT floor limit just by increasing lime injection rates (using control equipment that facilities already have) at yearly costs of $50,000 to $190,000 (or $4,648/ton), but that it would cost $73,098/ton to install ($10 million) and operate (up to $3.5 million/year) the new control technology that EPA assumes will be necessary to meet the single beyond-the-floor limit (equal to the NSPS floor) that EPA analyzed.[135] But EPA fails to analyze if there is some emission limit between these the EG MACT Floor and the NSPS floor that facilities could cost-effectively comply with simply by further increasing lime injection rates, without the need for installing new equipment. Similarly, EPA does not analyze whether lower mercury and dioxin limits could be attained simply by increasing carbon injection rates, even though this increased injection rate is precisely what EPA assumes some facilities would have to do in order to comply with the MACT floor limit.[136]

Fourth, EPA's analysis provides no metric so that the public can understand what makes a cost/ton value "cost-effective" or not. As noted in the 2023 Comments, EPA's cost-effectiveness analysis has historically been driven by what appears to be the Agency's gut reactions to whether a number looks high or not, as opposed to a principled method or at least clear threshold below which cost/ton numbers are assumed to be cost-effective.[137] The Proposed Rule here fails to provide just such a threshold, as OMB raised during interagency review.[138] If EPA makes cost-effectiveness the be-all-end-all of whether it adopts a beyond-the-floor limit,

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[132] Compliance Cost Memo, *supra* note 69 at 10, tbl. 3; *see also* OMB Passback 2, App. D to Interagency Review Materials (OMB) – Transmittal, Comments, Response, Clearance at 186 (comment Round 225) (Dec. 7, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0017) ("The cost effectiveness values for the beyond-the-floor standards are not significantly different than for the MACT floor; in fact, BTF controls are more cost effective for PM and Hg.").
[133] Compliance Cost Memo, *supra* note 69 at 10, tbl. 3.
[134] *See* Compliance Cost Memo App. A, *supra* note 130, A-1 (using "NSPS-based limits" in the "BTF" analysis).
[135] *Id.* at A-1 (Control Measures By Unit) & A-2 (Cost Summary).
[136] *See* Compliance Cost Memo, *supra* note 69 at 4.
[137] *See* 2023 Comments, *supra* note 1 at 18 (ex. 1).
[138] *See* OMB Passback 1, *supra* note 43 at 176 (comment EO 1286612) ("Are these costs/ton consistent with what EPA has found cost effective in other related actions?").

then it should at least set clear guidelines about whether a cost/ton value would be considered cost-effective or not.

3. EPA Should Address Pollutant-Specific Issues in its Cost-Effectiveness Analyses.

In addition to issues with EPA's general methodology of its analysis for setting limits lower than the floors, EPA should correct issues related to the cost-effectiveness calculations for specific pollutants.

a. NOx

There are a number of calculation issues that may be inflating EPA's NOx cost/ton estimates. For one, EPA's analysis arbitrarily undercounts the expected emission reductions from better NOx control technologies by manipulating high NOx emission readings. With no explanation, EPA's analysis artificially lowers any NOx value (average of highest annual reading) above the emission limits down to an "assumed baseline concentration" equivalent to the current emission-limit level before calculating total emission reductions expected from the floor and five-year-review scenarios.[139] For example, EPA's data shows average highest annual NOx reading from Covanta Hennepin Unit 2 to be a whopping 1,326.9 ppmvd, but EPA arbitrarily ratchets this down to the "assumed" concentration of 205 ppmvd before calculating the emission reductions that would be required to meet the proposed 110 ppmvd limit.[140] This means that EPA's analysis assumes only a 46% decrease in NOx emissions from this unit, even though the data shows that this would be closer to a 91% emission reduction. Without this data manipulation, we calculate that true emission reduction and cost-effectiveness of the beyond-the-floor 110 ppm NOx limit would be $3,567 per ton (compared to EPA's current $5,191 per ton).

EPA's manipulation of this data in the context of emission reduction estimates is especially egregious because EPA did not similarly change the data when calculating the MACT floors. For example, EPA retains the original, higher NOx value for Long Beach Unit 3 when calculating the MACT floors, and this higher value presumably ends up weakening the EG floor since that unit is among the top 12% of NOx emitters that EPA identified.[141] But when it comes to calculating emission reductions and cost-effectiveness, EPA manipulates this unit's NOx emission to a lower level, thereby decreasing assumed emission reductions from lower emission limits and increasing the cost/ton of those limits. But if the NOx emissions data is reliable enough to use to calculate the floors, then it should be reliable enough to calculate emission reductions as well, and it is arbitrary and capricious for EPA to have it both ways and treat data as reliable in one context and unreliable in another.[142] This is especially so where, as here, EPA's methodology is erring in favor of less protection of public health.

In addition, it appears that EPA's cost-effectiveness calculations includes units two facilities (Kent Waste to Energy Facility and Lancaster County/HBG Resource Recovery) that are *already* required to meet the proposed 110 ppm limit because they are covered by the EPA

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[139] *See* Emission Reduction Memo App. A, *supra* note 95, A-2 (Reductions By Unit).
[140] *Id.*
[141] MACT Floor Memo App. B, *supra* note 44, B-2 (Rankings).
[142] *Sierra Club v. EPA*, 884 F.3d at 1195 ("That mismatch—treating data EPA had viewed as not reliable at low emission levels as if it were affirmative support for a breakdown of the correlation at those levels—makes EPA's decision arbitrary and capricious.").

Good Neighbor Plan.[143] All else being equal, we calculate that removing these two facilities would reduce EPA's cost/ton estimate for the five-year-review option from $5,191 to $5,025 per ton – and if both this and the issue raised in the paragraphs directly above are corrected, then cost/ton would further decrease to $3,585.

Moreover, the Proposed Rule fails to analyze the range of broadly available control technology options that could result in emissions even lower than EPA's proposed emission limit. Selective catalytic reduction ("SCR"), for example, is a widely available technology that is already in use in 60% of the coal fleet, and has been considered Best Available Control Technology ("BACT") for decades.[144] The Proposed Rule claims that SCR "can only be reasonably applied during construction of the unit, so retrofitting SCRs to other existing units would be technically infeasible and/or very costly if a supplemental burner is required to provide reheat."[145] But the Babcock study completed for Wheelabrator (now WIN) Baltimore lists some 400 incinerator facilities around the world currently equipped with SCR and ordering catalysts for SCR systems.[146] And municipal solid waste incinerators in Canada that were constructed without SCR systems have successfully been retrofitted with SCR systems.[147]

At the very least, EPA should consider setting EG limits based on hybrid systems that combine both selective non-catalytic reduction ("SNCR") and SCR. These systems can result in NOx emission reductions of up to 75%, but at "a lower capital cost than a full-scale SCR" since "the ductwork modifications needed for a hybrid SNCR-SCR and additional component weights can be accommodated by the existing structural steel without the need for new foundations while far less catalyst is used."[148] The downstream SCR in these system takes advantage of the ammonia/urea slip from the upstream SNCR, resulting in reductions not only in NOx emissions but also ammonia slip.[149]

b. Particulates

EPA's cost estimates for fabric filter baghouse retrofits appear to be too high. For example, EPA cites a Covanta permit application that discloses that the 2016 baghouse

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[143] *See* Compliance Cost Memo App. A, *supra* note 130, A-1 (Control Measures By Unit); EPA, Final Non-EGU Sectors Technical Support Document at 88 (tbl. 7.A) (Mar. 2023) *in* Rulemaking Docket No. EPA-HQ-OAR-2021-0668, https://www.epa.gov/system/files/documents/2023-03/Final%20Non-EGU%20Sectors%20TSD.pdf (Attachment 32 to Exhibit 1).

[144] Federal Implementation Plan Addressing Regional Ozone Transport for the 2015 Ozone National Ambient Air Quality Standard, 87 Fed. Reg. 20,036, 20,080 (Apr. 6, 2022).

[145] Proposed Rule, 89 Fed. Reg. at 4,255.

[146] Babcock Power Env't, *Waste to Energy NOx Feasibility Study* at App. C-2 (Feb. 20, 2020) (attached as Exhibit 13); *see also* Tore Hulgaard & Inger Søndergaard, *Integrating waste-to-energy in Copenhagen, Denmark*, 171 Civ. Eng'g 3 (2018) (attached as Exhibit 14) (describing Copenhagen incinerator equipped with SCR).

[147] *Environmental Sustainability*, Emerald Energy from Waste, https://emeraldefw.com/environmental-sustainability/ (last visited Mar. 18, 2024) (attached as Exhibit 15) (noting that the Emerald incinerator in Ontario opened in 1992 and currently has SCR system); Rob. C. Rivers & Nenad Knezev, *A Canadian Perspective on Waste-to-Energy* 83-89 (2001), https://asmedigitalcollection.asme.org/NAWTEC/proceedings-abstract/NAWTEC9/35251/83/1075640 (attached as Exhibit 16) (clarifying that this SCR system was added to the incinerator after 1998 in response to new regulatory requirements).

[148] Babcock Power Env't, *Waste to Energy NOx Feasibility Study*, *supra* note 146 at 12 (ex. 13); Dr. Ranajit Sahu, *Expert Report on NOx Emissions from the Wheelabrator Baltimore Municipal Waste Incinerator in Baltimore City* at 4 (May 5, 2017), https://environmentalintegrity.org/wp-content/uploads/2016/11/CBF-Comments_NOx-RACT-Rulemaking_5.9.2017.pdf (attach. B to URL) (attached as Exhibit 17).

[149] Sahu, *supra* note 148 at 4 (ex. 17).

installation project resulted in cumulative project costs over the life of the LMWC units of $35.9 million in 2018 dollars.[150] But EPA's 2010 memo on baghouse project costs predicted that the Covanta project would be closer to $40 million in 2018 dollars.[151] So real-world baghouse costs have proven to be significantly lower than EPA's 2010 estimates, suggesting that 2010 memo's other baghouse installation and operation costs – and by extension, the Proposed Rule's cost-effectiveness numbers for particulates control that use these 2010 estimates – may also be inflated.

In addition, EPA's estimates of the costs of "lost electricity sales" from baghouse retrofit may similarly be overstated. EPA's analysis assumes that the amount of these electricity sale revenues are equivalent to tipping fee revenues.[152] But Covanta's most recent 10-Q report shows electricity revenues are only 27% of tipping fee revenue.[153] This is consistent with the recognition in EPA's Regulatory Impact Analysis that "[o]verall, municipal waste combustors rely primarily on tipping fees and secondarily on electricity sales for revenues."[154] It therefore appears that EPA's calculations are grossly overestimating lost electricity sales during baghouse retrofits.

c. CO

While the Proposed Rule proposes to lower the emission limits of the other Section 129 pollutants (because of lower floors), here EPA is not proposing to lower the CO limits at all. This is largely the result of its flawed floors analysis, which, as explained above, EPA should correct. Regardless of the floors analysis, EPA should still go beyond-the-floor and lower the CO emission limits given EPA's prior statements about the harms of high CO emissions and incinerators' own reports that they are emitting well below the current limits. EPA recognizes that "[t]he presence of CO is an indicator of incomplete combustion. A high level of CO in emissions is an indicator of incomplete combustion and, thus, a potential indication of elevated organic HAP emissions."[155] And EPA's Environmental Appeals Board has noted, "maintaining

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[150] Letter of Patricia Earls, Covanta to Yaso Sivaganesh, NJDEP regarding NSPS Subpart Eb applicability to Covanta Essex (Oct. 11, 2019) (attached as Exhibit 18) (cited in Compliance Cost Memo App. A-4).

[151] EPA's 2010 estimate of cumulative lifetime costs calculated by adding $23,973,801 of capital costs to 15 years of $294,638/year of "Direct and Indirect Operating and Maintenance" costs, then using U.S. Bureau of Labor Statistics CPI calculator to convert from 2002 dollars to 2018 dollars. *See* Letter from Larry Sorrels to Walt Stevenson, Revised Control Costs for Affected Sources, Compliance Cost Memo App. B at 9 (June 9, 2010) (Doc. ID EPA-HQ-OAR-2017-0183-0014).

[152] Compliance Cost Memo App. A, *supra* note 130, A-4.

[153] Covanta Holding Corporation, Form 10-Q for the quarterly period ended Sept. 30, 2021 at 28 (Oct. 28, 2021) (attached as Exhibit 19) ($104 million in Energy revenue divided by $378 million in Waste revenue).

[154] EPA, *Regulatory Impact Analysis for the Proposed Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors* at 2-6 (Jan. 2024) (Doc. ID EPA-HQ-OAR-2017-0183-0016).

[155] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers, 75 Fed. Reg. 31,896, 31,900 (June 4, 2010); *see also Sierra Club v. EPA*, 884 F.3d at 1193 ("Because CO results from incomplete oxidation, more complete combustion leaves less CO (and more CO2) in the resulting emissions stream. By the same token, the more complete the combustion, the lower the emission of organic HAPs—carbon-based molecules that have not been fully oxidized. *See* 78 Fed. Reg. at 7145; 75 Fed. Reg. at 32,025. . . . Both CO (not yet replaced by CO2) and organic HAPs (not yet fully broken down) appear in an emissions stream when combustion is not 'complete,' while driving combustion nearer to 'completeness' reduces emissions of both. *See* 76 Fed. Reg. at 15,654.")

CO levels at less than 100 ppm ensures that emissions from products of incomplete combustion do not pose an unacceptable health risk."[156]

In contrast to these clear statements about the harms of high CO readings, the Proposed Rule is proposing to retain CO limits as high as 250 ppm for existing units and 100 ppm for new units.[157] EPA justifies not proposing any change to the CO limits because the CO floors it calculated were all higher than the current limits – indeed, EPA calculated floors as high as some 820 ppm.[158] In other words, EPA is justifying keeping the CO limits at levels it recognizes pose a potentially "unacceptable health risk" based on a floor calculation that is over eight times above the level of "unacceptable health risk" – and based on a floor calculation that, as explained above, contains many faults that should be corrected in the Final Rule.[159]

In contrast to EPA's exceedingly high floors, Covanta's promotional data report that its incinerators have CO emissions that average 76% below EPA current standards (with individual facilities up to 93% lower).[160] Thus, this is a situation contemplated under the CAA where "implementation and enforcement of any requirement of this chapter indicate that emission limitations and percent reductions beyond those required by the standards promulgated under this section are achieved in practice."[161] EPA must therefore "consider the[se] emission limitations and percent reductions achieved in practice" as part of its five-year review,[162] and thus cannot ignore emission levels some 76% below EPA standards to instead choose to not lower the current CO limits at all.

Incinerators in other countries are operating under CO limits much lower than EPA's current limits. For example, Ontario sets an incinerator CO emission limit of 35 ppmdv (4-hour average) at 11% O2,[163] and this corresponds to about 23 ppm at 7% O2. Thus, CO emissions much lower than EPA's proposal are achievable by LMWCs.

d. Acid Gases

EPA's SO2 analysis arbitrarily undercounts expected emissions reductions by doing the same data manipulation it does for NOx, as explained above: EPA lowers SO2 monitored values (average of highest annual reading) down to an "assumed baseline concentration" equivalent to the current emission-limit level before calculating total emission reductions expected from the floor and five-year-review scenarios.[164] Without this data manipulation, we calculate that true emission reduction and cost-effectiveness of the 14 ppmvd SO2 limit would be $36,515 per ton (compared to EPA's current $73,098 per ton). As with NOx, EPA should use the original emissions data instead of this manipulation when calculating the cost-effectiveness.

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[156] *In the Matter of: Waste Technologies Industries East Liverpool, Ohio*, No. 92-7, 1992 WL 191952, at *12, n. 25 (July 24, 1992).
[157] Proposed Rule, 89. Fed. Reg. at 4,250.
[158] MACT Floor Memo App. B, *supra* note 44, B-1 (Summary).
[159] *See In the Matter of: Waste Technologies Industries East Liverpool, Ohio*, 1992 WL 191952, at *12, n. 25.
[160] 2023 Comments, *supra* note 1 at 6 (ex. 1).
[161] 42 U.S.C. § 7411(b)(1)(B).
[162] *Id.* §§ 7411(b)(1)(B), 7429(a)(5).
[163] *Guideline A-7: Air Pollution Control, Design and Operation Guidelines for Municipal Waste Thermal*, Ontario Ministry of the Environment at §§ 2.1 (tbl. 1), 8.0 https://www.ontario.ca/page/guideline-7-air-pollution-control-design-and-operation-guidelines-municipal-waste-thermal (last updated July 12, 2021) (attached as Exhibit 20).
[164] *See* Emission Reduction Memo App. A, *supra* note 95, A-2 (Reductions By Unit).

III. EPA SHOULD REQUIRE OPERATION OF FLOW MONITORS IN ALL LMWC UNIT STACKS TO ENABLE FUTURE DEVELOPMENT OF MASS-BASED LIMITS.

In its final rule, EPA should add a requirement that all LMWC unit stacks must be equipped with flow monitors and that the stack flow monitoring data must be reported to the Compliance and Emissions Data Reporting Interface ("CEDRI") in the annual reports. This will allow EPA to set mass-based limits, in pounds per hour, for this sector in future rulemakings.

Mass-based pollution limits should be established for LMWCs in the future to address the total amount of pollution released into communities that host incinerators. As EPA staff likely noticed, multiple residents of Chester, Pennsylvania raised this issue at the February 7, 2024 public hearing on the Proposed Rule. Chester houses the largest incinerator in the country, Covanta's Delaware Valley Resource Recovery Facility ("DVRRF"), which consists of six combustor units, while most LMWCs have only 2 or 3 units.[165] EPA has found that there is a total population of approximately 60,798 residents within a five-kilometer radius of the DVRRF, of which approximately 59% are people of color and 40% are low-income residents.[166] When using the 13 environmental indicators in EPA's EJScreen, the area scores within the 83rd to 94th percentiles.[167] At the hearing, multiple residents noted that concentration-based limits are not sufficient to protect their health, given the large number of other air pollution sources in the area and the six combustors operating at the DVRRF.

In order for concentration-based emissions data to be converted to mass-based data, stack flow information is necessary. When the State of Maryland issued NOx Reasonably Available Control Technology ("RACT") standards in 2018, it established facility-specific mass-based limits that the state's two LWMCs must meet during warmup and startup periods.[168] It was able to do this using plant-specific stack flow data. EPA will be able to do this in the future as well if it requires monitoring and reporting of stack flow data for all LMWCs. Knowing mass-based emissions is also necessary for ascertaining compliance with other parts of the CAA, such as when a major modification, triggering New Source Review, occurs.[169]

In the final rule, EPA should require monitoring and reporting of stack flow data for all LMWCs.

IV. EPA MUST REQUIRE CEMS FOR ALL POLLUTANTS.

EPA has proposed to continue requiring CEMS to demonstrate compliance with the NOx, SO2, and CO limits. For the other pollution limits - HCl, PM, Hg, Pb, Cd, and PCDD/PCDF - EPA proposes to continue to treat CEMS as an option rather than a requirement. EPA acknowledges that performance specifications for Hg and PM CEMs were approved at the time

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[165] *In the Matter of Covanta Delaware Valley LP, Delaware Valley Resource Recovery Permit No. 23-00004*, Order on Pet. No. III-2023-10 at 6 (Nov. 2, 2023) [hereinafter DVRRF Order] (attached as Exhibit 21).
[166] *Id.*
[167] *Id.*
[168] Md. Code Regs. § 26.11.08.10(D) (2020).
[169] *See, e.g.*, 40 C.F.R. § 52.21(b)(23)(i).

of its 2006 rulemaking and that "[s]ince this time, other performance specifications have been promulgated."[170] However, EPA still fails to require CEMS for any pollutants for which continuous monitoring is not required under its current LMWC rules. EPA has also requested comment on whether it should set alternative limits for use when CEMS is the compliance testing method. Specifically, EPA seeks comment on whether a 30-day rolling hourly average is appropriate for the LMWC category, "both for the currently required CEMS and for optional CEMS and continuous automated sampling systems[.]"[171] The Agency also requests comment on whether there is sufficient data to establish alternative limits for the pollutants currently measured by stack testing.

EPA must, at minimum, require CEMS for PM, Hg, and HCl as all three of these CEMS have approved performance specifications. EPA should also finalize the performance specifications that it has proposed for multi-metals CEMS and require multi-metals CEMS for Pb and Cd. EPA should also develop and finalize performance specifications for PCDD/PCDF CEMS, and require its use following approval of the performance specifications. Other countries require CEMS for more pollutants that the U.S. The European Union requires continuous monitoring for HCl, Hg, ammonia (NH_3,) hydrogen fluoride (HF), dust, and total volatile organic compounds (TVOC) in addition to NO_x, SO2, and CO.[172] HCl CEMS is used for compliance purposes at incinerators in Canada.[173] If other countries can set these requirements, the U.S. can too.

While Commenters believe that EPA is clearly required to mandate the use of CEMS, in the alternative, Commenters support EPA's proposal to develop an alternative set of requirements that permitting authorities could require compliance with under Title V permits. With respect to a potential 30-day averaging period, as discussed in more detail below, this is sufficient as a first step for setting CEMS-based limits for pollutants currently measured by stack testing. It is not appropriate or permissible as an averaging period for pollutants currently measured using CEMS.

A. Section 129 of the Clean Air Requires Direct Monitoring of Regulated Pollutants.

Section 129 mandates that EPA's LMWC Standards must require LMWCs to "monitor emissions from the unit at the point at which such emissions are emitted into the ambient air . . . and at such other points as necessary to protect public health and the environment[.]"[174]

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[170] Proposed Rule, 89 Fed. Reg. at 4,257.
[171] *Id.*
[172] *Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration*, Off. J. of the Eur. Union at 64-65 (Dec. 3, 2019), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN (attached as Exhibit 22).
[173] Ontario Ministry of the Env't, Certificate of Approval to the Regional Municipality of Durham et. al., Multi-Media Number 7306-8FDKNX at 48 (June 28, 2011), https://www.durhamyorkwaste.ca/en/facility-approvals/resources/Documents/EnvironmentalComplianceApproval.pdf (attached as Exhibit 23); Ontario Ministry of the Env't, Amended Environmental Compliance Approval to Emerald Energy from Waste Inc, Number 0264-BFGQFY at 5 (Mar. 19, 2021), https://www.accessenvironment.ene.gov.on.ca/instruments/6740-B6XMEC-14.pdf (attached as Exhibit 24).
[174] 42 U.S.C. § 7429(c)(1).

Importantly, Section 129 specifies that EPA's regulations must require the direct monitoring of emissions. While Section 129 gives EPA the discretion to also require monitoring of "other parameters,"[175] this authority is additive rather than allowing substitution, so EPA cannot substitute parametric monitoring in place of direct monitoring. But the direct monitoring requirements of the current LMWC Standards are outdated, insufficient, and fail to ensure the protection of public health and the environment as the CAA requires. EPA should revise the LMWC Standards to require CEMS for all regulated pollutants. CEMS is the best available means to monitor emissions in a way that can provide adequate data to ensure compliance with emission standards and protect public health and the environment.

B. EPA Must Require CEMS to Show Compliance with the PM, Hg, and HCl Limits.

There is no reason for EPA not to require CEMS as the compliance demonstration monitoring method for the NSPS and EG limits for PM, Hg, and HCl. EPA has promulgated performance specifications for continuous monitors for each of these pollutants in Appendix B to 40 C.F.R. Part 60.[176] Further, these are health-harming pollutants and CEMS for these pollutants are already used for compliance purposes at incinerators and other large industrial pollution sources.

1. Particulate Matter (PM)

Given the serious health risks posed by PM2.5,[177] EPA must require LMWCs to utilize PM CEMS instead of simply giving these facilities the option of using CEMS.[178] PM CEMS can also ensure that baghouses are operating properly, since factors such as moisture can compromise baghouse control efficiency,[179] and this compromised efficiency may otherwise go undetected if PM is measured only once a year. The technology to continuously monitor PM has been on the market for over two decades, at least since EPA's 2001 approval of PM CEMS by companies such as Thermo Andersen, Rupprecht & Patashnick Co., and TSI, Inc.[180]

In November 2023, EPA objected to the Title V permit for Covanta's DVRRF, the largest LMWC facility in the country, on a claim relating to PM monitoring.[181] The DVRRF is located in Chester, Pennsylvania, which, as described above in Section III, has significant environmental justice concerns, including a large concentration of existing industrial

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[175] *Id.* § 7429(c)(2).
[176] 40 C.F.R. § 60, App. B; *see also* EPA, Air Emissions Measurement Center, Performance Specifications, https://www.epa.gov/emc/emc-performance-specifications (last updated Aug. 31, 2023) [https://perma.cc/DL6T-WQMS] (PM is PS-11, Hg is PS-12A&B, and HCl is PS-18).
[177] 2023 Comments, *supra* note 1 at 25-26 (ex. 1)
[178] *See* NRC Study, *supra* note 10 at 8-9 (attach. 2 to ex. 1).
[179] EPA, *Air Pollution Control Technology Fact Sheet: Fabric Filter - Pulse-Jet Cleaned Type*, *supra* note 70 at 5 (attach. 43 to ex. 1) (noting baghouses "cannot be operated in moist environments; hygroscopic materials, condensation of moisture, or tarry adhesive components may cause crusty caking or plugging of the fabric or require special additives.").
[180] *Advanced Monitoring Systems Center Verified Technologies*, EPA Environmental Technology Verification Program, https://archive.epa.gov/nrmrl/archive-etv/web/html/vt-ams.html#mmcem (last updated Feb. 20, 2016) (Attachment 44 to Exhibit 1).
[181] DVRRF Order, *supra* note 165 (ex. 21).

polluters.[182] Petitioners EIP, Clean Air Council, and Sierra Club argued that the monitoring required by the permit, mainly semi-annual or annual stack testing, is insufficiently frequent to assure compliance with the facility's hourly PM limit.[183] EPA granted Petitioners' request for an objection on this claim.[184] If EPA were to require PM CEMS in this rule, it would help guard against similar instances of inadequate monitoring requirements for short-term PM limits in LMWC permits.

PM CEMS are already required in other contexts. For example, EPA's recently proposed update to its Mercury and Air Toxics Standards ("MATS") would require the use of PM CEMS instead of allowing the facilities to choose between CEMS or stack tests.[185] Some of the benefits EPA listed were lower costs of CEMS when compared to quarterly stack tests, the superior measuring capabilities of CEMS, increased transparency, and increased speed in identifying anomalous emissions.[186] And States already require various facilities to continuously monitor PM.[187]

2. Mercury (Hg)

To ensure maximum mercury control and protect public health, EPA should require all LMWCs to install mercury CEMS. Mercury CEMS would provide a reliable and cost-effective means for facilities to ensure that they are complying with mercury limitations on a continuous basis. Furthermore, installation of mercury CEMS is economically feasible, as demonstrated by the hundreds of power plants across the United States that have installed mercury CEMS to comply with the monitoring requirements in the MATS rule,[188] and the multi-year field test of mercury CEMS at Covanta's Hillsborough County Resource Recovery Facility in Tampa, Florida. This successful field test of mercury CEMS in the incineration context demonstrates that CEMS is practicable for LMWCs.[189] As of 2007, EPA had already verified over a dozen continuous emission monitors for mercury, and multiple air regulating entities across the country already require mercury CEMS.[190]

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[182] *Id.* at 6.

[183] *In the Matter of Covanta, Delaware Valley LP,* Petition- III-2023-10 at 12-14 (June 23, 2023), https://www.epa.gov/system/files/documents/2023-07/Covanta%20Delaware%20Valley%20Petition_6-23-23.pdf. Petitioners noted that the permitting agency made a general statement that a continuous opacity monitoring system (COMS) was used to ensure continuous compliance with the PM limit but that (1) this was not identified in the permit; and (2) the agency had failed to explain with any specificity how the COMS requirements assure compliance with the DVRFF's specific PM limit. *Id*. At 14.

[184] DVRRF Order, *supra* note 165 at 12-13 (ex. 21).

[185] *See* National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review, 88 Fed. Reg. 24,854, 24,857 (Apr. 24, 2023).

[186] *Id.*

[187] *CEMS Installations in North Carolina*, N.C. DEQ, https://deq.nc.gov/about/divisions/air-quality/air-quality-compliance/continuous-emissions-monitoring-systems-cems/cems-installations-north-carolina (last updated Nov. 2020) (Attachment 45 to Exhibit 1).

[188] *See* 40 C.F.R. § Pt. 63, Subpt. UUUUU; *see also* Zero Mercury Working Grp., *Continuous Emission Monitoring Systems for Mercury* (2013), https://www.nrdc.org/sites/default/files/int_13090401a.pdf (Attachment 46 to Exhibit 1).

[189] *See* Air Permit for Hillsborough County Resource Recovery Facility, Florida DEP, Permit No. 0570261-018-AC/PSD-FL-369E at 6 (June 11, 2015) (Attachment 47 to Exhibit 1).

[190] *Advanced Monitoring Systems Center Verified Technologies, supra* note 180 (attach. 44 to ex. 1); *see e.g.* Air Pollution Control Ordinance, Borough of Kulpmont, PA, Ordinance No. 2006-02, art. III(2)(a) (2007).

3. Hydrogen Chloride (HCl)

As early as 2005, EPA recognized that "[s]tate agencies, such as those in Michigan, Massachusetts, and Pennsylvania, already require the use of HCl CEMS for MWC units in their jurisdictions."[191] And in 2020, EPA objected to the Title V permit for the Montgomery County Resource Recovery Facility ("MCRRF") in Maryland because of inadequate HCl monitoring conditions. Specifically, EPA found that the frequency of monitoring must bear some relationship to the averaging time used to demonstrate compliance, and accordingly, concluded "that the annual stack test required by the Permit, by itself, is insufficient to assure compliance with the hourly HCl emission limit."[192] Maryland subsequently revised MCRRF's Title V permit to require the use of HCl CEMS to demonstrate compliance with the facility's hourly HCl limit.[193] Covanta's LMWC facility in Chester, Pennsylvania also operates an HCl CEMS[194] as does the Curtis Bay Energy medical waste incinerator in Baltimore.[195] EPA's 2012 MATS rule for coal and oil-fired power plants also requires CEMS for this pollutant.[196] EPA should similarly require LMWCs to use CEMS for hydrogen chloride.[197]

a. EPA Must Revise the Proposed Regulatory Text to Acknowledge that Performance Specifications for HCl Have Been Promulgated.

EPA states in the preamble to the Proposed Rule that "[s]ince [2006], other performance specifications have been promulgated and the EPA is proposing to incorporate them into these large MWC requirements."[198] However, EPA's proposed revisions for the NSPS continue to indicate that performance specifications for HCl are still forthcoming and have not yet been promulgated. EPA's current regulations state: "[t]he option to use a continuous emission monitoring system for . . . hydrogen chloride takes effect on the date a final performance specification applicable to . . . hydrogen chloride monitor is published in the Federal Register or the date of approval of the site-specific monitoring plan required in identified paragraphs (n)(13) and (o) of the section."[199] In its revision, EPA has proposed to change the internal paragraphs referenced at the end of this sentence but not to acknowledge that the performance specification for HCl has already been promulgated.

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[191] Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors, 70 Fed. Reg. 75,348, 75,354 (Dec. 19, 2005) [hereinafter 2005 LMWC Standards Proposed Rule].
[192] EPA, Order Granting a Petition for Objection to Permit, *Montgomery Cnty. Res. Recovery Facility*, Petition No. III-2019-2 at 9 (Dec. 11, 2020), https://www.epa.gov/sites/default/files/2020-12/documents/montgomery_response2019.pdf (Attachment 50 to Exhibit 1).
[193] Title V/ Part 70 Operating Permit for Montgomery County Resource Recovery Facility, MD DEP, Permit No. 24-031-1718 at 47 (June 20, 2022), https://mde.maryland.gov/programs/permits/AirManagementPermits/Test/Montgomery%20County%20RRF%20Issued%20Title%20V%20Permit.pdf (Attachment 51 to Exhibit 1).
[194] Title V Air Permit for Covanta Delaware Valley, PA DEP, Permit No. 23-00004 at 51 (Mar. 10, 2023) (Attachment 39 to Exhibit 1); *see also Covanta Delaware Valley*, Covanta, https://www.covanta.com/where-we-are/our-facilities/delaware-valley (last visited June 1, 2023) (Attachment 52 to Exhibit 1).
[195] Title V/Part 70 Operating Permit for Curtis Bay Energy, MD DEP, Permit No. 24-510-2975 at 32 (May 1, 2019), https://mde.maryland.gov/programs/permits/AirManagementPermits/Test/Curtis%20Bay%20Energy%20Title%20V%20Permit%202019.pdf (Attachment 53 to Exhibit 1).
[196] 40 C.F.R. § Pt. 63, Subpt. UUUUU, App. B., 2.1.
[197] NRC Study, *supra* note 10 at 68 (attach. 2 to ex. 1).
[198] Proposed Rule, 89 Fed. Reg. at 4,257.
[199] 40 C.F.R. § 60.58b(n).

EPA must ensure that the proposed revisions for both the EG and NSPS acknowledge that HCl performance specifications have been promulgated.

C. EPA Should Require Multi-Metals CEMS to Show Compliance with Pb and Cd Limits.

Given the astounding level of harm cadmium and lead can cause the human body,[200] CEMS should be mandatory for these pollutants. EPA proposed performance specifications for multi-metals CEMS capable of measuring Pb and Cd in 1996.[201] In 2002, EPA verified the Cooper Environmental Services XCEM Multi-Metals Continuous Emission Monitor, which continuously measures cadmium, lead, and mercury, among other metals.[202] EPA acknowledges on its website that it issued approval to Eli Lilly Company to use the Cooper instrument "as a CEMS as an alternative in lieu of parameter monitoring on a hazardous waste incinerator [and that] Lilly invested in much laboratory and field work to prove to the EPA that their CEMS is accurate, reliable, and verifiable."[203] EPA further states that "[t]he US Army has successfully installed and evaluated one of these CEMS on a hazardous waste incinerator."[204] It appears that this refers to the Toole Army Depot in Utah.[205]

The newer multi-metals models are capable of providing data on an even wider range of metals.[206] Technological infeasibility is no longer an excuse for lackluster monitoring.

EPA should finalize the performance specifications for multi-metals CEMS as soon as possible. In its LMWC regulations, it should require use of multi-metals CEMS to demonstrate compliance with Pb and Cd following promulgation of the performance specifications.

D. EPA Should Require CEMS to Show Compliance With the Dioxin/Furan (PCDD/PCDF) Limit.

Despite the danger that dioxins present,[207] EPA is not proposing to mandate CEMS for these highly toxic emissions. The serious health risks that dioxins pose require EPA to

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[200] 2023 Comments, *supra* note 1 at 23-24 (ex. 1).
[201] EPA, *Proposed Performance Specification 10 for Multi-Metals Continuous Monitoring Systems* (Apr. 19, 1996), https://www.epa.gov/sites/default/files/2020-08/documents/ps-10.pdf (attached as Exhibit 25).
[202] EPA, *Environmental Technology Verification Report: Cooper Environmental Services XCEM Multi-Metals Continuous Emission Monitor* (May 2002), https://archive.epa.gov/nrmrl/archive-etv/web/pdf/02_vr_cooper_xmcem.pdf (Attachment 54 to Exhibit 1).
[203] *Air Emission Measurement Center (EMC), Performance Specifications and Other Monitoring Information*, EPA, https://www.epa.gov/emc/performance-specifications-and-other-monitoring-information (last updated Sept. 6, 2023) (attached as Exhibit 26).
[204] *Id*.
[205] There are two reports online showing the Army Corps of Engineers' Research and Development Center's ("Corps R&D Center") analysis after testing the performance of the XCEM multi-metals CEMS in 2005. Corps R&D Center, *X-Ray Fluorescence-Based Multi-Metal Continuous Emission Monitor Technology Demonstration* (Mar. 2005), https://apps.dtic.mil/sti/pdfs/ADA433778.pdf (attached as Exhibit 27); Corps R&D Center, *X-Ray Fluorescence-Based Multi-Metal Continuous Emission Monitor Development* (Jan. 2005), https://apps.dtic.mil/sti/pdfs/ADA430237.pdf (attached as Exhibit 28).
[206] *Xact® 640 Multi-Metals Monitor*, SailBri Cooper, Inc., http://sci-monitoring.com/product/xact-640-multi-metals-monitor/ (last visited June 1, 2023) (Attachment 55 to Exhibit 1) ("Key applicable elements: Sb, As, Ba, Cd, Ca Cr, Co, Cu, Fe, Pb, Hg, Mn, Ni, Se, Ag, Sn, Ti, Tl, V, Zn, and more available").
[207] 2023 Comments, *supra* note 1 at 24-25 (ex. 1).

mandate more stringent monitoring and reporting of this toxic pollutant. As of 2006, EPA had already approved dioxin monitoring devices from four different companies, so the technology has been tested and available for almost two decades.[208]

Dioxin CEMS are already in use in China.[209] While it appears that dioxin CEMS cannot provide real-time data due to the need for filter analysis in a laboratory, this method can still provide continuous data and is preferable to obtaining data based on infrequent stack testing.

EPA should promulgate performance specifications for dioxin monitors as soon as possible and require CEMS for dioxin upon promulgation of these specifications.

E. A 30-Day Averaging Period for Compliance with PM, HCl, Hg, Cd, Pb, PCDD/PCDF Limits Should Be Coupled with a Shorter-Term Limit.

EPA requests comment on whether it should set alternative limits for use when CEMS is the compliance testing method. Specifically, EPA seeks comment on whether a 30-day rolling hourly average is appropriate for the LMWC category, "both for the currently required CEMS and for optional CEMS and continuous automated sampling systems."[210] The Agency also requests comment on whether there is sufficient data to establish alternative limits for the pollutants currently measured by stack testing.

A 30-day period alone is generally not appropriate for the LMWC sector because the waste stream can vary significantly and it is important to guard against short-term spikes in pollution.[211] The Proposed Rule's pollution limits are supposed to apply "at all times,"[212] and EPA should set short-term averaging periods to ensure that continuous compliance with the limits. In addition, in the same section of the preamble in which EPA requests comment on a potential 30-day averaging period, EPA quotes from the preamble to its 2006 LMWC Standards, in which it recommends a 24-hour averaging period for LMWCs limits when measured using CEMS. Specifically, in 2006, EPA stated:

> The move from once per year stack testing (where emission limits were calculated from the 99 percentile) to CEMS (99.7 percentile) suggests the emission limit should be increased if the same data averaging period is used. To address this, the final rule increases the data averaging period from 8 hours (typical particulate

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[208] *Advanced Monitoring Systems Center Verified Technologies*, *supra* note 180 (attach. 44 to ex. 1).
[209] Wenhua Yin et. al, *Prediction and correlation study of dioxin emissions classifications from municipal solid waste incinerators*, 15 Atmospheric Pollution Rsch. 102066 (2024) (attached as Exhibit 29).
[210] Proposed Rule, 89 Fed. Reg. at 4,257.
[211] For example, the CEMS data that is available online from Covanta's Montgomery County Resource Recovery in Maryland demonstrates that short-term pollution rates can vary significantly even within a single day. *Emissions Data Detail – Resource Recovery Facility*, Montgomery Cnty. Maryland Dept. of Envt'l Prot., https://www.montgomerycountymd.gov/DEP/trash-recycling/facilities/cem-data.html [https://perma.cc/AUP7-45GC]. On February 1, 2024, the 1-hour HCl data for unit 2 ranged from 10 ppm to 21 ppm, more than doubling within a single day. *Resource Recovery Facility Emissions Data for 2/1/2024*, Montgomery Co. Md. Dept. of Env't Prot. (Feb. 1, 2024) (attached as Exhibit 30). Similarly, on March 2, 2024, the 1-hour HCl data from unit 1 more than doubled within a single day, ranging from 7 ppm to 16 ppm. *Resource Recovery Facility Emissions Data for 3/2/2024*, Montgomery Cnty. Md. Dept. of Env't Prot. (Mar. 2, 2024) (attached as Exhibit 31).
[212] Proposed Rule, 89 Fed. Reg. at 4,256.

> matter and mercury stack test period) to a 24-hr daily average if particulate matter or mercury CEMS are used. Past analysis of sulfur dioxide CEMS and nitrogen oxides CEMS data (and utility particulate matter CEMS data) indicate increasing the averaging period to a 24-hr daily average will reduce emissions variability and associated peak emissions estimates.[213]

Thus, EPA has already recognized that a 24-hour limit addresses the shift from stack testing to CEMS and there is no reason to believe that a longer averaging period is necessary for any of the other pollutants. If EPA establishes a 30-day limit, it should be complemented by a 24-hour limit.

1. Pollutants Currently Measured by Stack Testing

EPA currently has sufficient stack test data that will allow it to set CEMS-based limits for the EGs on a 30-day average if it uses the UPL at the 50th percentile (the average of the stack test data). Using the 50th percentile over a 30-day average reduces the statistical impact of the limited stack test dataset.[214] Once EPA has collected CEMS data from existing incinerators following promulgation of this rule, it will have the information needed to set a complementary 24-hour limit for each pollutant that is not currently measured by CEMS. EPA should commit to setting these 24-hour limits as soon as it has the data required to do so. EPA will also likely need to tighten the 30-day limit in the future based on the forthcoming CEMS data, which will be a better representation of actual emissions than the current, limited dataset of stack test results.[215]

2. For NOx, SO2, and CO, 30-Day Limits are Not Appropriate or Permissible as a Substitute for Current Averaging Times.

EPA has requested comment on whether "the 30-day rolling hourly average is appropriate to use in the LMWC source category . . . for the currently required CEMS."[216] For the currently required CEMS, it is not clear whether EPA is seeking comment on a possible additional 30-day limit or is considering substituting 30 days for the current averaging periods.

A 30-day averaging period is completely inappropriate and impermissible as a substitute for the current averaging periods for NOx, SO2, and CO. NOx and SO2 are currently measured on a 24-hour basis, and CO is a 4-hour or 24-hour limit.[217] These averaging periods help to ensure compliance with short-term National Ambient Air Quality Standards including the 1-hour SO2 and NO2 standard, the 1-hour and 8-hour CO standard, and the 8-hour ozone standard (for which NOx is a precursor).[218]

Further, setting such a limit could have the effect of weakening the current limits by allowing a higher emissions rate over the original averaging period (24 hours or 4 hours) that is masked by averaging with lower concentrations on different days over a the longer 30-day period. This is impermissible. The D.C. Circuit has recognized that the CAA is a "technology-

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[213] *Id.* at 4,257 (quoting 2006 LMWC Standards, 71 Fed. Reg. 27,330).
[214] Buckheit Report, *supra* note 1 at 22-23 (ex. 2).
[215] *Id*. at 20-23 (ex. 2).
[216] Proposed Rule, 89 Fed. Reg. at 4,257.
[217] *See, e.g.*, 40 C.F.R. § 60.53b(a) (CO); *id.* § 60.58b(e)(6) (SO2); *id.* § 60.58b(h)(5) (NOx).
[218] *See, e.g.*, *NAAQS Table*, EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table (last updated Feb. 7, 2024) (attached as Exhibit 32).

forcing statute."[219] This means that it is intended to strengthen requirements over time, rather than allowing relaxation of requirements.[220]

There is no need or rational basis for EPA to weaken the current standards for CO, SO2, or NOx by substituting a 30-day averaging period for the 4-hour and 24-hour periods currently used to measure compliance with these standards. Such an action by EPA would be arbitrary and capricious and could impermissibly weaken the standards. EPA may not expand the current averaging times for the NOx, SO2, and CO standards to 30 days.

V. WARMUP, STARTUP, SHUTDOWN, AND MALFUNCTION EVENTS

EPA has proposed to remove the provisions in the existing regulations that exempt operators from compliance with emission limits during warmup, startup, shutdown, and malfunction events.[221] EPA has also proposed to add associated definitions and to allow operators to use actual stack oxygen content, rather than correcting to 7% oxygen, to measure compliance during warmup, startup, and shutdown.[222] In the SSM section, EPA also requests comment on the possibility of using a 30-day hourly rolling average or demonstrating compliance with pollutants measured using CEMS.[223]

A. EPA Must Finalize Its Proposal to Remove Exemptions During Startup, Shutdown, and Warmup Periods and to Require Reporting of CEMS Data During These Periods

Commenters strongly support EPA's proposal to eliminate the regulatory provisions expressly exempting LMWC operators from complying with limits during warmup, startup, shutdown, and malfunction periods. These exemptions are illegal and impermissible. The plain language of the CAA requires EPA to promulgate emission standards that are "continuous" and apply at all times.[224] In 2008, the D.C. Circuit Court of Appeals held that, because emission limitations must apply "on a continuous basis," EPA's blanket exemption to the National Emission Standards for Hazardous Air Pollutants ("NESHAP") numerical emission limits during SSM periods violates the CAA, so the court vacated EPA's illegal SSM exemption.[225] EPA subsequently recognized that the court's reasoning to invalidate SSM exemptions for NESHAPs applies just as equally to emission limits in NSPS.[226] Accordingly, EPA's post-2008

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[219] *Sierra Club v. Costle*, 657 F.2d 298, 364 (D.C. Cir. 1981).
[220] S*ee id.*
[221] Proposed Rule, 89 Fed. Reg. at 4,256; EPA Mem. regarding Proposed Regulation Edits for 40 CFR Part 60, Subparts Cb and Eb, Attachment: Regulatory text with proposed edits in redline/strikeout, subpart Eb at 38 (proposed § 60.58b(a)(3)) (Aug. 31, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0011) [hereinafter Subpt. Eb Redline]; EPA Mem. regarding Proposed Regulation Edits for 40 CFR Part 60, Subparts Cb and Eb, Attachment: Regulatory text with proposed edits in redline/strikeout, subpart Cb at 16-17 (proposed § 60.38b(a)) (Aug. 31, 2023) (Doc. ID EPA-HQ-OAR-2017-0183-0011) [hereinafter Subpt. Cb Redline].
[222] Proposed Rule, 89 Fed. Reg. at 4,256-57.
[223] *Id.*
[224] *See* 42 U.S.C. § 7602(k).
[225] *See Sierra Club v. EPA*, 551 F.3d 1019, 1026–28 (D.C. Cir. 2018) (citing 42 U.S.C. § 7602(k)).
[226] State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction, 80 Fed. Reg. 33,840, 33,907–08, 33,912

emission standards no longer include SSM exemptions,[227] and EPA has been removing illegal SSM exemptions in pre-2008 rules as it reviews and revises them.[228] Indeed, EPA has already removed the unlawful exemptions from Section 129 emission limits for other incinerator categories, such as medical waste incinerators.[229]

Commenters support EPA's proposal to keep the SSM limits the same as those during normal operations, while not requiring that the oxygen content be corrected to 7% during these events. This is consistent with EPA's approach in its recent Good Neighbor Rule, which applies the same NOx emission limits for incinerators during normal operations and SSM, with only a change to the stack oxygen content requirement.[230] This approach is also supported by data. As EPA and the D.C. Circuit have recognized, for incinerators "nearly all pollutants are present in smaller numbers during startup and shutdown anyway, when incinerators are burning fuels alone rather than fuels and solid waste."[231] Thus, LMWC emission limits during fossil fuel-burning periods should be much lower than during normal operations, since burning waste creates so much pollution that it is even dirtier than burning fossil fuels. In no case may EPA set an SSM limit that is *higher* than the limit during normal operations, since the CAA does not allow EPA to consider startup, shutdown, and malfunction when setting MACT standards.[232] And, as the NRC has recommended, under no circumstance should SSM emissions be excluded from LMWC emissions data reports.[233]

(June 12, 2015) (recognizing that EPA's "justification for exemptions from emission limitations during SSM events in NSPS [New Source Performance Standards] . . . made prior to the 2008 decision of the court in the Sierra Club case . . . is no longer correct."). The D.C. Circuit's March 2024 decision partially invalidating EPA's State Implementation ("SIP") call to remove SSM provisions from state rules is completely distinguishable from and irrelevant to EPA's duty to remove SSM exemptions from regulations under CAA sections 111, 112, and 129. The Court's decision in *Envt'l Comm. of the Fla. Elec. Power Coordinating Grp. v. EPA*, 2024 WL 876819, *16 (D.C. Cir. 2024) is entirely based on its interpretation of section 110 of the CAA and associated conclusion that EPA must take an extra step thereunder before disallowing automatic exemptions for SSM periods.

[227] State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction, 80 Fed. Reg. at 33,890.

[228] *See, e.g.,* New Source Performance Standards Review for Lead Acid Battery Manufacturing Plants and National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources Technology Review, 88 Fed. Reg. 11,556, 11,575 (Feb. 23, 2023) ("We proposed and are finalizing revisions to the NESHAP . . . that remove the SSM exemption under the Lead Acid Battery Manufacturing Area Source NESHAP and any references to SSM-related requirements.").

[229] Standards of Performance for New Stationary Sources and Emissions Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 74 Fed. Reg. 51,386, 51,394 (Oct. 6, 2009) (removing SSM exemptions for medical waste incinerators at 40 C.F.R. §§ 60.56c(a) and 60.37e(a)).

[230] Federal "Good Neighbor Plan" for the 2015 Ozone National Ambient Air Quality Standards, 88 Fed. Reg. 36,654, 36,837-38 (June 5, 2023).

[231] *United States Sugar Corp.*, 830 F.3d at 609 (citing Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (2010 Proposed CISWI Rule), 75 Fed. Reg. 31,938, 31,964 (June 4, 2010)).

[232] *See United States Sugar Corp.*, 830 F.3d at 608 ("[T]he statutory language on its face prevents the EPA from taking into account the effect of potential malfunctions when setting MACT emission standards.").

[233] NRC Study*, supra* note 10 at 215 (attach. 2 to ex. 1) ("In monitoring for compliance, or other purposes, data generated during the intervals in which a facility is in startup, shutdown, and upset conditions should be included in the hourly emissions data recorded and published. It is during those times that the highest emissions are expected to occur, and omitting them systematically from monitoring data records does not allow for a full characterization of the actual emissions from an incineration facility.")

Thus, EPA's proposed revisions to the LMWC regulations properly acknowledge that EPA must remove the SSM exemptions as it has done in other instances.[234] However, Commenters also note that a preferable approach to allowing an alternative oxygen concentration during SSM events would be to set mass-based limits (e.g. lbs/hour) as referenced in Section III above. EPA should require the operation of flow monitors in all LMWC units and reporting of associated data to allow the future development of mass-based limits.

B. EPA Must Clearly Require that Monitoring Data Obtained During Warmup and SSM Events Must be Recorded, Reported, and Used When Calculating Compliance with Standards.

EPA's proposed revisions do not clearly require recording and/or reporting of CEMS data obtained during warmup and SSM events or that these data must be used when calculating values for comparison to the standards when determining compliance. The preamble states that EPA is proposing to require that "CEMS data must be collected and reported whenever the large MWC unit is operating."[235] However, EPA should expressly state in its final rule that warmup and SSM data must be obtained, reported, and used when calculating compliance values.

EPA's current LMWC rules state, in paragraph a(1) of 40 C.F.R. § 60.58b that "[d]uring periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with" other rule provisions. EPA has proposed to add a new section, paragraph a(3), to 40 C.F.R. § 60.58b, which states that, after a certain date, paragraph a(1) "no longer appl[ies]; instead, the standards of this subpart apply at all times including during periods of warmup, startup, shutdown, and malfunction."[236]

While Commenters support EPA's recognition of the fact that the standards must apply at all times, when paragraph a(1) becomes inapplicable, so does the clear mandate that SSM data must be recorded and reported. This lack of clarity is exacerbated by the inadequacy of the proposed reporting requirements for CEMS data more generally. Under the Proposed Rule, unless there is a violation of a standard, operators are allowed to maintain all CEMS data on site, including CEMS data that is excluded from compliance calculations,[237] rather than reporting it. This is discussed in more detail in Section VII below (on electronic reporting).

The recording and reporting of SSM data is also not clearly mandated elsewhere in the proposed regulations, particularly with respect to malfunction emissions. For example, proposed 40 C.F.R. § 60.58b(i)(4) states, regarding compliance with the CO limits and with proposed changes shown in redline, that:

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[234] *See e.g.*, New Source Performance Standards Review for Lead Acid Battery Manufacturing Plants and National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources Technology Review, 88 Fed. Reg. at 11,575 ("[W]e do not expect additional time is necessary generally for facilities to comply with changes to SSM provisions[.] . . . We are therefore finalizing that facilities must comply with this requirement no later than the effective date of this final rule.").

[235] Proposed Rule, 89 Fed. Reg. at 4,256.

[236] Subpt. Eb Redline, *supra* note 221 at 38 (proposed § 60.58b(a)(3); Subpt. Cb Redline, *supra* note 221 at 16-17 (proposed § 60.38b(a)).

[237] 40 C.F.R. § 60.59b(d)(7).

(4) The 4-hour block and 24-hour daily arithmetic averages specified in ~~paragraphs (i)(1)~~paragraphs (i)(1) and ~~(i)(2)~~(i)(2) of this section shall be calculated from 1-hour arithmetic averages expressed in parts per million by volume corrected to 7 percent oxygen (dry basis). CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are measured at stack oxygen content. The 1-hour arithmetic averages shall be calculated using the data points generated by the continuous emission monitoring system. At least two data points shall be used to calculate each 1-hour arithmetic average.[238]

Malfunction events are not expressly addressed like warmup, startup, and shutdown events, which could lead to confusion during enforcement regarding whether they must be included when calculating emissions values. Similar language is proposed in other sections, such as the section on operators that elect to use CEMS for Hg, Cd, Pb, or HCl.[239]

Commenters respectfully request that EPA require in proposed paragraph a(3) under 40 C.F.R. § 60.58(b) that monitoring data obtained during periods of warmup, startup, shutdown, or malfunction must be recorded and reported in accordance with electronic reporting requirements (as stated below, Commenters request that EPA require reporting of CEMS data to CEDRI). Commenters also request that EPA expressly state that monitoring data obtained during periods of warmup, startup, shutdown, or malfunction must be included when calculating emission values for comparison to the standards.

C. Proposed Definition of "CEMS Data During Warmup, Startup, and Shutdown"

In its proposed revisions, instead of adding definitions for "warmup," "startup," and "shutdown" events, EPA has added a definition of "CEMS data during warmup, startup, and shutdown."[240] The definition of this term is copied below.

CEMS data during warmup, startup, and shutdown means the following:

(1) Warmup - CEMS data collected during the first hours of a municipal waste combustor operation from a cold start until waste is fed to the unit is considered a warmup period and has no time constraints. No waste is introduced to the grate during warmup.

(2) Startup - CEMS data collected after warmup when waste is introduced to the combustion grate but prior to steady state operation. CEMS data during startup may be claimed for up to three hours per occurrence.

(3)Shutdown - CEMS data collected following the cessation of charging waste to the combustion grate prior to entering a period where the municipal waste combustor is

[238] Subpt. Eb Redline, *supra* note 221 at 68 (proposed § 60.58b(i)(4)); Subpt. Cb Redline, *supra* note 221 (proposed § 60.38b(a)).
[239] Subpt. Eb Redline, *supra* note 221 at 80 (proposed § 60.58b(n)(9)); Subpt. Cb Redline, *supra* note 221 at 16-17 (proposed § 60.38b(a)).
[240] Subpt. Eb Redline, *supra* note 221 at 8 (proposed § 60.51b).

not operating. CEMS data during shutdown may be claimed for up to three hours per occurrence.[241]

It is unclear why EPA defines only the CEMS data gathered during warmup, startup, and shutdown events, rather than the events themselves. The regulations should not treat these events differently for different purposes, which would be the only reason to define the data and not the events. Defining the data and not the events could also lead to confusion in the future. EPA should define the events rather than the data.

In addition, as EPA acknowledges in the preamble, the definition of warmup is not time-limited, and EPA requests comment on what an appropriate limit would be.[242] EPA should add a time limit for the warmup period if at all possible. If EPA does not do so, it must ensure that warmup periods are reported to CEDRI so that EPA can limit these periods the next time that it revises the LMWC regulations under CAA Section 129.

D. Proposed 30-Day Averaging Period

For the reasons discussed in Section IV above, a 30-day averaging period is appropriate as a first step in setting CEMS-based standards for pollutants now measured by stack testing, but it is not permissible or appropriate for NOx, SO2, or CO, which are already measured based on CEMS. In addition, the removal of the SSM exemptions does not result in a need for a longer averaging period. When the State of Maryland issued new NOx RACT standards for its two LMWCs, it disallowed SSM exemptions and established mass-based limits during SSM periods. It did not expand the averaging period when it did so and, instead, it retained the 24-hour averaging period for NOx limits.[243] EPA should do the same regarding the Section 129 standards for LMWCs.

VI. EPA SHOULD NOT REMOVE THE TITLE V PERMIT REQUIREMENT FOR AIR CURTAIN INCINERATORS

EPA should not finalize its proposal to remove the Title V permit requirement for air curtain incinerators that burn wood waste, clean lumber, and yard waste. Burning this type of waste can produce significant pollution. Without Title V permits, there is no guarantee that monitoring requirements will be imposed to assure compliance with EPA's opacity limit for these facilities. EPA should not remove this permit requirement.

A. Burning "Clean Wood" Can Be Very Polluting And Treated Lumber Presents Additional Risks

Burning wood, even when it is untreated, produces significant amounts of air pollution. Table 2 below shows a table reproduced from a Washington State Department of Natural Resources pamphlet,[244] comparing uncontrolled combustion of untreated forest wood to

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[241] *Id.*
[242] Proposed Rule, 89 Fed. Reg. at 4,257.
[243] *See* MD. Code Regs. § 26.11.08.10(D) (2020).
[244] Washington State Dept. of Natural Resources, *Forest Biomass and Air Emissions*, http://file.dnr.wa.gov/publications/em_forest_biomass_and_air_emissions_factsheet_8.pdf (attached as Exhibit 33).

uncontrolled coal or natural gas emissions. Emission rates from wood are equal to or higher than coal for volatile organic compounds, carbon monoxide, particulate matter, and manganese.

Table 2: Wood v. Coal v. Natural Gas, Uncontrolled Emissions Comparison

Pollutant	Wood (lb/MMBtu)	Coal (lb/MMBtu)	Natural Gas combined cycle turbine (lb/MMBtu)
NO_X	0.220	0.510	0.0371
CO	0.600	0.025	0.0075
SO_2	0.025	0.890*	0.0028
VOC	0.017	0.003	0.0043
PM	0.570	0.460	0.0083
CO_2	206.94	214.04	116.97
HCI	1.900E-02	6.100E-02	None
Hg	3.500E-06	1.600E-05	None
Mn	1.600E-03	1.200E-03	None

In addition, while EPA's proposed rules require that lumber must be "100% clean" in order to qualify for the exemption, there is no definition of "clean lumber" or process for ensuring that treated lumber does not enter the relevant waste stream. The Northeast Waste Management Officials Association has stated that "in practice distinguishing between clean and dirty wood can be difficult, making economic segregation of mixed construction and demolition waste challenging."[245] While this statement was made in the context of a study assessing construction and demolition waste, it raises a significant and relevant concern regarding the possibility for treated lumber to be misclassified as "clean." Treated lumber can contain hazardous chemicals. The chemical treatments identified by EPA as of greatest concern are lead (in paint) and "creosote, pentachlorophenol, chromated copper arsenate, or other copper, chromium, or arsenical preservatives."[246] Eliminating permit requirements for such a polluting industry would be completely contrary to the purpose of the Clean Air Act.

B. EPA Should Not Remove the Title V Permit Requirement

Title V permit requirements help to assure that sufficient monitoring, testing, recordkeeping, and reporting requirements are imposed on the permitted source.[247] EPA's current and proposed LMWC regulations establish an opacity limit for air curtain incinerators burning this waste stream.[248] For non-major air curtain incinerators, this may be the only pollution limit to which the facilities are subject. Title V permitting requirements, which compel

[245] Ne. Waste Mgmt. Offs. Ass'n, *Construction & Demolition Waste Management in the Northeast in 2006* at 19 (June 2009), https://www.newmoa.org/wp-content/uploads/2022/06/CDReport2006DataFinalJune302009.pdf (attached as Exhibit 34).
[246] Additions to List of Categorical Non-Waste Fuels, 81 Fed. Reg. 6,688, 6,704 (Feb. 8, 2016); *see also* Northeastern States for Coordinated Air Use Management, *Emissions from Burning Wood Fuels Derived from Construction and Demolition Debris* at iv-v (May 2006), http://www.nescaum.org/documents/2006-0710-emiss_from_burning_wood_fuels_derived_from_c-d_report.pdf/view (attached as Exhibit 35).
[247] 40 C.F.R. § 70.1 et. seq.
[248] *Id.* § 60.56b.

agencies to issue permits that "assure compliance" with federal pollution limits,[249] are necessary to ensure compliance with this opacity limit. EPA recognized this to be the case in 2005, when it last considered the issue, and it is still true.

EPA should not finalize its proposal to remove the Title V permit requirement for air curtain incinerators that burn wood waste, clean lumber, and yard waste.

VII. EPA SHOULD REQUIRE ELECTRONIC REPORTING OF ALL EMISSIONS DATA, INCLUDING CEMS DATA.

EPA has revised its reporting requirements to mandate that performance (stack) test results must be submitted electronically, along with other information required in mandatory annual reports, to EPA's Compliance and Emissions Data Reporting Interface (CEDRI) database.[250] EPA also expressly states in the proposed rule that all emissions data submitted to CEDRI will be available to the public,[251] which is consistent with the approach that EPA has taken in prior rules.[252] Commenters appreciate EPA's proposal to make these badly needed improvements, which will make an additional important dataset available to the public.

However, EPA is not proposing to require that LMWC operators submit CEMS data to CEDRI and, instead, is proposing to require that this data be maintained on-site.[253] This is an enormous deficiency in the Proposed Rule and an unacceptable approach that will likely impede EPA's ability to conduct future revisions of these rules. EPA's dearth of CEMS data has already caused it to propose inappropriately high limits in this Proposed Rule. EPA has based its proposed NOx, SO2, and CO limits in the Proposed Rule on peak annual data because that is the only CEMS data that has been reported to EPA.[254] To avoid a similar predicament in the future, EPA must require reporting of all LMWC CEMS data to CEDRI.

Further, EPA's recent Good Neighbor Rule already requires incinerators subject to the rule to report their NOx CEMS data to CEDRI[255] and EPA should extend that requirement to all CEMS data from all LMWCs. It is critical that the public and EPA have access to this data to assess compliance as well as the emission reductions that can be achieved by various technologies. In the final rule, EPA must require LMWC operators to submit all CEMS data to

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[249] 42 U.S.C. § 7661c.

[250] Subpt. Eb Redline, *supra* note 221 at 102-109 (proposed § 60.59b(g)(1),(g)(2),(j)(1)); Subpt. Cb Redline, supra note 221 at 17 (proposed § 60.39b(a)) (largely incorporating by reference the electronic reporting requirements of proposed 40 C.F.R. § 60.59b). Operators are required to submit CEMS data only if there is a failure to comply with a pollutant or parameter limit. Subpt. Eb Redline, *supra* note 221 at 106-108 (proposed § 60.59b(h)).

[251] Subpt. Eb Redline, *supra* note 221 at 114-116 (proposed § 60.59b(q)).

[252] *See, e.g.*, 40 C.F.R. § 60.375a(b)(3)(i) ("The EPA will make all the information submitted through CEDRI available to the public without further notice to you.").

[253] Subpt. Eb Redline, *supra* note 221 at 93-95 (proposed § 60.59b(d)(2)); Subpt. Cb Redline, *supra* note 221 at 17 (proposed § 60.39b(a)).

[254] MACT Floor Memo, *supra* note 42 at 6 ("[D]ata for CO, NOx and SO2 are collected continuously, and available data comprise only peak annual values which the current rule requires reporting."); Buckheit Report, *supra* note 1 at 20-23 (ex. 2).

[255] Federal "Good Neighbor Plan" for the 2015 Ozone National Ambient Air Quality Standards, 88 Fed. Reg. at 36,838 ("With regard to electronic reporting, the final rule requires performance tests and reports, including CEMS data, to be submitted to CEDRI, as required for all non-EGU industries covered by this final rule.").

CEDRI in averaging times that can be compared directly to the standard (e.g., 24-hour averages for NOx and SO2 and 4-hour averages for CO).

VIII. EPA SHOULD ENSURE THAT THE EMISSIONS GUIDELINES ARE IMPLEMENTED AS SOON AS POSSIBLE.

In order to protect human health and the environment, EPA should implement this rule (incorporating our proposed modifications), as quickly as possible. As discussed in Section I, and as EPA acknowledges,[256] emissions from LMWCs pose severe risks to the surrounding communities and environment. Further, EPA has repeatedly missed its deadlines for promulgating regulations on LMWCs.[257] This current set of standards is nearly thirteen years late. Each day that EPA does not impose these emissions limits is another day that communities are potentially exposed to these harmful pollutants.

Congress promulgated the CAA to reduce air pollutant emissions for the purpose of protecting human health and the environment as quickly as possible. Section 129 explicitly states that emissions standards for existing solid waste combustors "shall be effective as expeditiously as practicable."[258] It also lays out a series of timelines for implementing the standards as expeditiously as possible, imposing mandatory deadlines for EPA to issue standards,[259] for states to submit state plans,[260] and for EPA to approve or disapprove those plans.[261] EPA should respond to Congress's clear concern and quickly implement these standards to reduce LMWC emissions.

As the D.C. District Court has acknowledged, the CAA requires the Agency to, at the very least, issue a federal plan required for states that fail to submit state plans implementing emission guidelines for existing sources, within five years of finalizing a rule.[262] The Agency's proposed regulatory text would codify this five-year requirement.[263] However, five years is much too long to wait for relief from LMWC emissions.

As EPA has previously recognized, CAA Section 129(b)(3) requires it to impose a federal plan within two years of finalizing an emissions limit if a state fails to propose its own

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[256] Proposed Rule, 89 Fed. Reg. at 4,262-63.
[257] The CAA first required EPA to issue LMWC regulations in 1991, but EPA did not promulgate regulations until 1995. 1995 LMWC Standards, 60 Fed. Reg. at 65,387. EPA then missed its 2000 deadline for issuing a revision to the regulations by promulgating a rule in 2006. 2006 LMWC Standards, 71 Fed. Reg. at 27,324. EPA's current revision was due in 2011. 42 U.S.C. § 7429(a)(5).
[258] 42 U.S.C. § 7429(f)(2).
[259] *Id.* § 7429(a)(1).
[260] *Id.* § 7429(b)(2).
[261] *Id.*
[262] *Sierra Club v. Wheeler*, 330 F. Supp. 3d 407, 419 (D.D.C. 2018) ("[A]s EPA acknowledged at oral argument, even under its reading, the agency is required to produce a federal implementation plan that would assure every incineration unit subject to it is in compliance within five years after it promulgated the relevant guidelines."), *aff'd*, 956 F.3d 612 (D.C. Cir. 2020).
[263] Subpt. Cb Redline, *supra* note 221 at 22-23 (proposed § 60.39b(j)).

state plan.[264] Rather than waiting until the five-year deadline, EPA should instead impose a federal plan (where a state fails to propose a state plan) within two years of finalizing this rule. The Agency should strive to achieve this timeline in order to eliminate harmful emissions as quickly as possible and to achieve the policy goals that underly the CAA.[265]

IX. EPA MUST ADDRESS POLLUTANTS NOT LISTED IN SECTION 129.

A. EPA Must Regulate Emissions of POM and PCB.

As we raised in the 2023 Comments,[266] CAA Section 112(c)(6) requires EPA to produce a list of sources accounting for 90% of polycyclic organic matter ("POM") and polychlorinated biphenyl ("PCB") emissions (among other Hazardous Air Pollutants ("HAPs")) and regulate those emissions under a CAA MACT-based standard.[267] In 1998 EPA acknowledged that LMWCs are one of the source categories responsible for 90% of POM and PCB emissions, triggering its responsibilities to regulate LMWC emissions of those chemicals.[268] This triggers EPA's obligation to regulate POM and PCBs from LMWCs.

These chemicals pose serious health risks.[269] POM emitted by LMWCs are carcinogenic, easily absorbed into organic material, and can chemically react with other compounds in the atmosphere to create degradation products more toxic than the original POM.[270] PCBs are persistent, bioaccumulative, toxic chemicals that can be easily transported through the air and deposited into water, soil, and plant material.[271] Even low-concentration but chronic exposures

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[264] Federal Plan Requirements for Commercial and Industrial Solid Waste Incinerators Constructed on or Before November 30, 1999, 68 Fed. Reg. 57,518, 57,518 (Oct. 3, 2003) ("If a State or Tribe with existing CISWI units does not submit an approvable plan, sections 129 and 111 of the CAA require the EPA to develop, implement, and enforce a Federal plan for CISWI units located in that State or Tribal area within 2 years after promulgation of the emission guidelines."); Federal Plan Requirements for Sewage Sludge Incineration Units Constructed on or Before October 14, 2010, 81 Fed. Reg. 26,040, 26,041 (Apr. 29, 2016) ("Sections 111 and 129(b)(3) of the CAA and 40 CFR 60.27(c) and (d) require the EPA to develop, implement and enforce a federal plan for SSI units in any state without an approvable state plan within 2 years after promulgation of the EG."); Federal Plan Requirements for Commercial and Industrial Solid Waste Incineration Units, 82 Fed. Reg. 3,554, 3,556-57 (Jan. 11, 2017) ("Sections 111 and 129(b)(3) of the CAA and 40 CFR 60.27(c) and (d) require the EPA to develop, implement and enforce a federal plan for CISWI units in any state without an approvable state plan within 2 years after promulgation of the EG.")

[265] The D.C. Circuit, and EPA itself, has recognized citizens' ability to file unreasonable delay suits for EPA's failure to timely impose a federal plan. *Sierra Club v. Wheeler*, 956 F.3d 612, 620-21 (D.C. Cir. 2020) (Wilkins, J. concurring).

[266] 2023 Comments, *supra* note 1 at 31-32 (ex. 1).

[267] 42 U.S.C. § 7412(c)(6) (stating that EPA "shall, not later than 5 years after November 15, 1990, list categories and subcategories of sources assuring that sources accounting for not less than 90 per centum of the aggregate emissions of each such pollutant are subject to standards under subsection (d)(2) or (d)(4)").

[268] Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements, 63 Fed. Reg. 17,838, 17,847, tbl. 2 (Apr. 10, 1998); 2023 Comments, *supra* note 1 at 31-32 (ex. 1).

[269] 2023 Comments, *supra* note 1 at 31-32 (ex. 1).

[270] Jamie M. Kelly et al., *Global Cancer Risk From Unregulated Polycyclic Aromatic Hydrocarbons*, 5 Geohealth 1-19 (2021) (Attachment 56 to Exhibit 1); Hyunok Choi et al., *Polycyclic aromatic hydrocarbons* in WHO Guidelines for Indoor Air Quality: Selected Pollutants, pgs. 289-345 (2010) (Attachment 57 to Exhibit 1).

[271] Marta Gabryszewska & Barbara Gworek, *Impact of municipal and industrial waste incinerators on PCBs content in the environment*, 15 PLOS ONE 1-13 (2020) (Attachment 58 to Exhibit 1); Prachi Gupta et al., *The*

can result in chronic inflammatory diseases, liver, stomach, intestinal, and thyroid cancers, non-Hodgkin lymphoma, cardiovascular disease, and diabetes.[272] Congress was specifically concerned with these chemicals for their environmental impacts and bioaccumulative properties, and EPA must set emissions limits that will mitigate these risks.[273]

Regulating these emissions is a nondiscretionary duty under the CAA. Section 112(c)(6) says EPA "shall . . . assur[e] that [these sources] are subject to [MACT-based] standards[.]"[274] Congress's use of the word "shall" means that EPA has no discretion to decline to set these standards because it has a mandatory duty to do so.[275] This mandatory duty is made especially clear by contrasting the use of "shall" in Section 112(c)(6) with, for example, Section 112(b)(5)'s statement that the Administrator "may" establish other procedures for measuring emissions.[276] EPA must do its statutory duty by setting specific emissions standards for POM and PCBs.

While the statute requires EPA to set MACT-based standards under Section 112 for these pollutants, EPA has interpreted the statutory structure to allow it to satisfy this requirement by setting MACT standards under Section 129, instead, for the LMWC source category. When it listed LMWC as a source category, the Agency stated that "[b]ecause section 129 provides for a substantively equivalent level of control as section 112(d)(2) and because section 129(h)(2) prohibits subjecting solid waste incinerators to both section 129 and section 112(d) standards, the Agency believes that it is appropriate to include section 129 as a regulatory instrument equivalent to section 112(d)(2)."[277] However, the plain text of the statute clearly states that POM and PCB emissions must be regulated under standards promulgated under Section 112(d)(2) or (d)(4).[278] EPA's interpretation is contrary to this plain language. Assuming, for the sake of argument, that Section 129 standards are sufficient in spite of the clear language, then EPA must follow through on that interpretation and set emissions limits under Section 129 in this rulemaking.

B. EPA Should Set PFAS Emissions Limits, Or At Least Require Monitoring of PFAS Emissions to Lay the Groundwork for Future Emissions Limits.

EPA should set limits for LMWC emissions of per- and polyfluoroalkyl substances ("PFAS") because of the ongoing and significant risks PFAS pose to human health and the environment. The Agency has already begun acting regarding exposures to PFAS through water,

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Environmental Pollutant, Polychlorinated Biphenyls, and Cardiovascular Disease: a Potential Target for Antioxidant Nanotherapeutics, 8 Drug Deliv Transl Res 740-759 (2018) (Attachment 59 to Exhibit 1).

[272] Gupta et al., *supra* note 271 at 3 (attach. 59 to ex. 1).

[273] S. Rep. No. 101-228 at *3,551 (Dec. 20, 1989).

[274] 42 U.S.C. § 7412(c)(6).

[275] *See Kingdomware Techs., Inc.v. United States*, 579 U.S. 162, 171 (2016) (holding that a statute's use of the word "shall" imposed a mandatory duty upon the Department of Veterans Affairs to follow certain requirements regarding government contracts); *see also Me. Cmty. Health Options v. United States*, 140 S. Ct. 1308, 1320-21 (2020) (holding that a statute's use of "shall" imposed a mandatory duty).

[276] 42 U.S.C. § 7412(b)(5).

[277] Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements, 63 Fed. Reg. at 17,845.

[278] 42 U.S.C. § 7412(c)(6).

consumer products, and manufacturing processes,[279] and it must also begin addressing exposure via air as well. At the very least, EPA should impose emissions monitoring requirements upon LMWCs in order to gather information on the amount and type of PFAS emitted as a result of incineration. This data is critical to formulating an emission limit that would protect humans and the environment from these airborne toxic chemicals.

As explained in our pre-rulemaking comments,[280] the Centers for Disease Control and Prevention ("CDC") and Agency for Toxic Substances and Disease Registry ("ATSDR") find that PFAS exposure is linked to serious health effects, including bone diseases, elevated cholesterol, diabetes, fatty liver disease, adverse impacts on thyroid and sex hormones as well as metabolic activity, and liver, kidney, and testicular cancer in adults.[281] PFAS have also been linked to increased risk of high blood pressure or preeclampsia in pregnant women, preterm birth, decreased birth weight, and other reproductive and developmental effects.[282] The CDC further found that "PFAS exposure may reduce antibody responses to vaccines, and may reduce infectious disease resistance,"[283] while the International Agency for Research on Cancer has declared certain PFAS carcinogenic.[284]

EPA acknowledges, and many studies confirm, that incineration using existing municipal waste combustion technologies is inadequate to destroy PFAS. EPA's Interim Guidance on the destruction of PFAS and PFAS containing materials states that "[i]t is not well understood how effective high-temperature combustion is in completely destroying PFAS" and that combustion could potentially result in the formation of fluorinated or mixed halogenated organic byproducts.[285] Further, EPA has stated that polymers containing PFAS may degrade through incomplete incineration and be subsequently released into the surrounding environment.[286] As manufacturers have shifted from long chain PFAS to short chain PFAS, the problem of destruction by incineration has actually worsened because some short chain PFAS require temperatures of over 1,400°C (2,550°F) to be destroyed.[287] The incineration of PFAS can also result in the creation of ozone-depleting chlorofluorocarbons, fluorinated greenhouse gases such

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[279] EPA, *EPA's PFAS Strategic Roadmap: Second Annual Progress Report*, 4-5 (Dec. 2023), https://www.epa.gov/system/files/documents/2023-12/epas-pfas-strategic-roadmap-dec-2023508v2.pdf (attached as Exhibit 36).
[280] 2023 Comments, *supra* note 1 at 32-34 (ex. 1).
[281] Agency for Toxic Substances and Disease Registry, *Human health effects of drinking water exposures to per- and poly-fluoroalkyl substances (PFAS): A multi-site cross-sectional study Protocol* at 22-23, (Nov. 17, 2021), https://www.atsdr.cdc.gov/pfas/docs/multi-site-study-protocol-508.pdf (Attachment 62 to Exhibit 1); *see also* Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* at 6, 665 (May 2021), https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf (Attachment 63 to Exhibit 1).
[282] ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 281 at 6 (attach. 63 to ex. 1).
[283] Zygmunt F. Dembek & Robert A. Lordo, *Influence of Perfluoroalkyl Substances on Occurrence of Coronavirus Disease 2019*, 19 Int. J. Environ. Res. Public Health 1, 10 (2022) (Attachment 64 to Exhibit 1).
[284] ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 281 at 6, 524 (attach. 63 to ex. 1).
[285] EPA, *Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances* at 41 (Dec. 18, 2020) (Attachment 65 to Exhibit 1).
[286] Premanufacture Notification Exemption for Polymers; Amendment of Polymer Exemption Rule to Exclude Certain Perfluorinated Polymers, 75 Fed. Reg. 4,295, 4,298 (Jan. 27, 2010).
[287] EPA, *Interim Guidance on the Destruction and Disposal of PFAS*, *supra* note 285 at 39 (attach. 65 to ex. 1).

as tetrafluoromethane, hexafluoroethane, fluoro-dioxins, fluorobenzofurans, fluorinated aromatic compounds and perfluorinated carboxylic acids.[288] Given the serious negative health impacts of PFAS, EPA's goal of proactively preventing PFAS from entering the air and harming human health,[289] and the evidence that LMWC incineration cannot ensure all PFAS are destroyed, EPA must regulate PFAS emissions from LMWCs in order to protect human health.

EPA has acted to prevent PFAS exposures through other media and required the development of information on PFAS releases. For example, EPA continues to expand its data collection regarding PFAS concentrations in effluent from a variety of point sources.[290] EPA has also issued guidance to states implementing NPDES permitting programs regarding identifying and eliminating PFAS discharges.[291] However, its actions on PFAS contamination through the air lag far behind. EPA itself admits that there is a need for "better identification and characterization of PFAS point source emissions" in the air.[292] Monitoring is necessary in order to identify and characterize these emissions.

In its October 2021 PFAS Strategic Roadmap, EPA stated that it would evaluate mitigation options including listing PFAS as HAPs and potentially pursuing other regulatory approaches.[293] PFAS are still not listed as HAPs, and EPA has failed to even include a monitoring requirement – let alone implementing actual emissions regulations – on PFAS in this and other Clean Air Act rules. EPA's homepage for the PFAS Strategic Roadmap indicates that the Office of Air and Radiation's Key Action is to build the technical foundation to address PFAS air emissions by identifying sources, developing and finalizing monitoring approaches, developing information for mitigation technologies, and increasing understandings of the fate and transport of airborne PFAS.[294] This rule represents an opportunity for EPA to make progress on those goals.

If EPA believes that it does not have enough data about PFAS incinerator emissions to set emissions limits now, then EPA must require incinerators to monitor PFAS emissions in order for EPA to later develop those emissions limits. The Clean Air Act empowers EPA to require LMWCs to monitor and supply the Agency with such data. Section 114 gives EPA the

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[288] David A. Ellis et al., *Thermolysis of fluoropolymers as a potential source of halogenated organic acids in the environment*, 412 Nature 321 (2001) (attached as Exhibit 37); Mingbao Feng et al., *Characterization of the thermolysis products of Nafion membrane: a potential source of perfluorinated compounds in the environment*, 5 Sci. Rep. 9859 (2015) (attached as Exhibit 38); Sandra Huber et al., Norwegian Inst. For Air Research, *Emissions from incineration of fluoropolymer materials: A literature Survey*, Report # OR 12/2009 (2009), https://nilu.com/publication/24739/ (attached as Exhibit 39).

[289] EPA, *PFAS Strategic Roadmap: Second Annual Progress Report*, *supra* note 279 at 3 (ex. 36) (stating that EPA plans to "[p]ursue a comprehensive approach to proactively prevent PFAS from entering air, land, and water at levels that can adversely impact human health and the environment").

[290] EPA, *Effluent Guidelines Program Plan 15* (Jan. 2023), https://www.epa.gov/system/files/documents/2023-01/11143_ELG%20Plan%2015_508.pdf (attached as Exhibit 40).

[291] Radhika Fox, EPA, Mem. Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf (attached as Exhibit 41).

[292] Revisions to the Air Emissions Reporting Requirements, 88 Fed. Reg. 54,118, 54,148 (Aug. 9, 2023).

[293] EPA, *PFAS Strategic Roadmap: Second Annual Progress Report*, *supra* note 279 at 4, 8 (ex. 36).

[294] *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024*, EPA, https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024#oar (last updated Dec. 14, 2023) (attached as Exhibit 42).

authority to require monitoring of any emissions for the purpose of "developing or assisting in the development of . . . any regulation of solid waste combustion under section 7429 of this title."[295] The plain language of this provision clearly vests EPA with the authority to require LMWCs to monitor PFAS emissions, and EPA must use this authority in order to develop and implement regulations that will protect communities from these PFAS emissions.

EPA has already developed two test methods to monitor PFAS from stationary sources – OTM-45 and OTM-50. OTM-45 measures commonly-emitted PFAS from vents and stacks, but can only measure approximately 50 PFAS,[296] less than 1% of the total class of PFAS.[297] OTM-50 can capture additional information about other PFAS air emissions, and would provide EPA with further data on PFAS emissions, especially products of incomplete incineration.[298] EPA should require incinerators to monitor PFAS emissions using both these test methods as a step towards regulating harmful PFAS emissions from LMWCs.

C. EPA Should Set Ammonia Slip Limits to Ensure the Efficiency of NOx Controls.

EPA should establish a limit for ammonia slip in order to ensure that NOx controls are performing efficiently. Ammonia slip is an indicator for whether urea in SNCR and SCR systems is being used at the right temperature range and for the right amount of time for reaction to control NOx.[299] Some state regulators have already paired ammonia slip limits with NOx limits to ensure that the NOx controls are optimized. For example, as we highlighted in our 2023 Comments,[300] PBREF II is subject to an ammonia slip limit of 10 ppmvd, Wheelabrator's Bridgeport facility has a limit of 18 ppmvd, and its Gloucester facility has a limit of 20 ppmvd.[301] Further, the technology to reduce ammonia slip exists. Ammonia slip catalysts can be

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[295] 42 U.S.C. § 7414(a).

[296] Suzanne Yohannan, *EPA Eyeing Paired Issuance of PFAS Disposal Guidance, Air Test Method,* Inside EPA (Dec. 11, 2023), https://insideepa.com/daily-news/epa-eyeing-paired-issuance-pfas-disposal-guidance-air-test-method (attached as Exhibit 43) ("OTM-45 . . . measures approximately 50 semi-volatile per- and polyfluoroalkyl substances (PFAS) and polar PFAS in air emissions").

[297] *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, Nat'l Inst. of Env't Health Sci., https://www.niehs.nih.gov/health/topics/agents/pfc (last updated Mar. 6, 2024) (attached as Exhibit 44) ("PFAS are a group of nearly 15,000 synthetic chemicals").

[298] Suzanne Yohannan, *EPA Releases PFAS Air Emissions Test Method Ahead Of Disposal Guide*, Inside EPA (Jan. 24, 2024), https://insideepa.com/daily-news/epa-releases-pfas-air-emissions-test-method-ahead-disposal-guide (attached as Exhibit 45) ("[t]he method could be useful in measuring PFAS in many products of incomplete combustion and destruction (PICs/PIDs) in incinerator emissions -- a method EPA is likely considering in its updated disposal/destruction guidance").

[299] *See, e. g.*, Michael Bisnett, Fuel Tech, *NOx Optimization Project Wheelabrator Baltimore Inc. Baltimore, Maryland Units 1, 2 & 3*, Project 459S, at 5 (June 2017) (attached as Exhibit 46) (stating that "ammonia slip needs to be determined given its importance in determining the effectiveness of the SNCR process").

[300] 2023 Comments, *supra* note 1 at 35 (ex. 1).

[301] Title V Air Operation Permit Renewal, Solid Waste Authority of Palm Beach County: Palm Beach Energy Renewable Park (PBREP), Permit No. 0990234-043-AV at 25 (Apr. 8, 2021), https://fldep.dep.state.fl.us/air/emission/apds/listpermits.asp (Attachment 12 to Exhibit 1); Title V Operating Permit for Wheelabrator Bridgeport, CT DEP Bureau of Air Management, Permit No. 015-0219-TV at 30 (Apr. 28, 2022) (Attachment 69 to Exhibit 1); Air Pollution Control Operating Permit Significant Modification for Wheelabrator Gloucester, NJ DEP, Permit Activity No. BOP180001 at 39 (Apr. 12, 2019) (Attachment 70 to Exhibit 1).

used to further enhance NOx control and reduce the amount of ammonia slip produced.[302] And as noted in Section II.C.3.a above, hybrid SNCR-SCR systems can be a useful tool to cost-effectively reduce both NOx and ammonia emissions. At minimum, if EPA believes more information is required before imposing an ammonia slip limit, EPA should require monitoring of ammonia slip to gather information for the purpose of imposing a limit in a future rulemaking.

X. EPA SHOULD PROMULGATE PRE-COMBUSTION CONTROLS TO LIMIT THE BURNING OF ORGANICS AND PLASTICS.

Section 129 of the CAA states that "[s]tandards. . . applicable to solid waste incineration units shall be based on methods and technologies for removal or destruction of pollutants *before*, during, or after combustion."[303] Despite this mandate, however, EPA's LMWC Standards have yet to require pre-combustion controls. Without mandatory pre-combustion controls requiring sorting, incinerators are burning both organics and plastics notwithstanding EPA guidance to the contrary and to the detriment of public health. Not only does the lack of pre-combustion controls contravene the plain language of Section 129, but it also allows activity at incinerators that is contrary to other directives emerging from the Agency around food waste disposal.

Unsorted food waste that can be filtered out and more appropriately redirected to composting facilities makes up a large portion of the incineration waste stream. In fact, of the 34.6 million tons of waste incinerated in the U.S. in 2018, food waste was the largest component, accounting for 22% of the waste stream.[304] EPA itself released a food waste management report just five months ago ranking incinerators along with landfills and wastewater treatment facilities as the worst ways to dispose of food waste, proposing instead a range of solutions from preventing food waste in the first place to even land application.[305] The report goes on to acknowledge that the water content of food waste "make[s] it a poor feedstock for controlled combustion" and that "[r]esearch indicates that removal of wasted food from [Municipal Solid Waste] streams before incineration can reduce energy use, increase calorific value, and improve efficiency of controlled combustion per unit of weight."[306] As mentioned in our 2023 Comments, the technologies capable of sorting organics and recyclable material out of the waste stream are already widely available, such as a multi-screen system to separate larger material from the smaller along with shredders, magnets, ballistic separators, eddy current separators, optical units,

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[302] *Ammonia Slip Catalysts (ASC)*, Johnson Matthey, https://matthey.com/products-and-markets/energy/stationary-emissions-control/ammonia-slip-catalysts (last visited Mar. 19, 2024) (attached as Exhibit 47).
[303] 42 U.S.C. § 7429(a)(3) (emphasis added).
[304] *National Overview: Facts and Figures on Materials, Wastes and Recycling*, EPA, https://epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials (last updated Nov. 22, 2023) (attached as Exhibit 48).
[305] EPA, *Part 2: From Field to Bin: The Environmental Impacts of U.S. Food Waste Management Pathways* at 5-8 through 5-10 (pdf pp. 153-155) (Oct. 2023), https://www.epa.gov/system/files/documents/2023-10/part2_wf-pathways_report_formatted_no-appendices_508-compliant.pdf (attached as Exhibit 49).
[306] *Id.* at 2-24 (pdf p. 45) (internal citations omitted).

and human sorters.[307] Separated material such as organics can then be redirected to the proper facilities instead of being incinerated.

Requiring diversion of organic materials from incinerators can also complement a regulatory effort that other organizations are seeking from EPA on municipal solid waste ("MSW") landfills. In June 2023, 12 organizations petitioned EPA for a rulemaking on landfills under CAA section 111. Among the requests in that petition are that EPA incentivize diversion of organic waste from landfills in order to reduce methane, which is created by the decomposition of organic matter in the absence of oxygen.[308] If EPA requires organics diversion under this rule for incinerators and incentivizes organics diversion under its regulations for landfills, this will help to encourage far more sustainable methods of organic waste disposal, like composting.

Allowing the continued combustion of organics is contrary to EPA's own guidance, conflicts with the statutory mandate to remove pollutants prior to combustion, and is simply not worth the environmental harm incurred. EPA must prohibit the combustion of organics in incinerators.

Requiring waste separation that removes not only organics, but also plastic from the waste stream prior to combustion would not only increase energy conversion efficiency, but also the health of incinerator-adjacent communities. EPA itself has admitted that "removing specific components of the waste stream prior to incineration has beneficial effects on MWC stack emissions, above and beyond the benefits of stack controls."[309] EPA has found that "70–80% of NOx formed in MSW incineration is associated with nitrogen in the MSW."[310] As we stated in our 2023 Comments, since organic waste is the primary contributor of nitrogen in the waste stream, pre-sorting organics could provide significant and much needed decreases to NOx emissions.[311] Similarly, pre-sorting plastics would provide benefits such as reducing heavy metal

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[307] *See* GBB Solid Waste Management Consultants, *Draft Conceptual Design Report for Kent County Waste to Energy Front End Processing System* at 1 (May 21, 2018) (Attachment 85 to Exhibit 1) ("The system as presented herein is not proprietary to any one supplier and could be purchased from several qualified companies. . . The system presented in this report. . . is projected to recover approximately 18,000 tons per year of valuable recyclables while recovering and diverting about 12,000 tons per year of high energy scrap plastics to other energy uses. It is also projected to divert approximately 35,000 tons of low energy organic material which could be more beneficially utilized for its nutrient and soil amendment value through composting.").

[308] EIP et. al., Petition for Rulemaking to Revise the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills at 54 (June 22, 2023), https://environmentalintegrity.org/wp-content/uploads/2023/06/FINAL-Petition-for-Rulemaking-CAA-111-Landfills.pdf [https://perma.cc/Z6JC-5CQD].

[309] Comments of Earthjustice on 2005 LMWC Standards Proposed Rule at 6 (Exhibit A to Exhibit 1 of Mandamus Petition [attach. 8 to ex. 1]) (citing Docket A-89-08, Item II-A-8, Municipal Waste Combustion Study (1987) at 17; see also Docket A-89-08, Item IV-J-348 [materials separation air benefits]).

[310] SC&A, Inc., NOx Emission Control Technology Installation Timing for Non-EGU Sources Final Report at 13 (Mar. 14, 2023) (Attachment 81 to Exhibit 1).

[311] 2023 Comments, *supra* note 1 at 39-40 (ex. 1).; *see also* Dong-Qing Zhang et al., *Potential gases emissions from the combustion of municipal solid waste by bio-drying*, 168 J. of Haz. Materials 1497-1503 (2009) (Attachment 82 to Exhibit 1) (comparing emissions between the organic fraction of MSW and mixed waste, which includes both the organic fraction and other components, and finding emissions of HCl, NOx, and inorganic chlorides were similar in magnitude between both types, suggesting the organic fraction accounted for the majority of emissions); EPA,

and PCB emissions from plastic burning, boosting participation in desired programs like recycling, and reducing greenhouse gas emissions.[312] Sorting is already being practiced abroad, and EPA itself has acknowledged the capability to do so in the U.S., stating that domestically, "[m]any advanced municipalities separate the waste on the front end to save recyclable products."[313] Meanwhile, a study conducted in Europe on implementing mixed waste sorting prior to landfilling or incineration found that it had the potential to avoid up to 23.2 million metric tons of CO_2 if implemented even moderately across Europe.[314] In the three countries used as case studies, the incorporation of sorting prior to incineration and landfilling "is projected to raise recycling rates in 2030 from 50-62% in Germany, 53-65% in Belgium and 44-58% in Sweden."[315] The technology is readily available, and these increased recycling and decreased emissions projections are in line with EPA's stated objectives, which is further proof of the significant benefits the reasonable – and statutorily mandated – change to requiring pre-combustion sorting can yield if the Agency would only require it during this rulemaking.

Finally, in addition to health-protective pre-combustion control measures, EPA should also require that facilities make public the data collected from their pre-combustion monitoring processes, such as what and how much is being burned along with data about how much is being redirected to recycling and composting facilities. Transparency is key in not only identifying impermissible substances and removing them from the waste stream, but also creating the level of disclosure necessary for the communities adjacent to these facilities to properly advocate for their own health.

Advancing Sustainable Materials Management: 2018 Fact Sheet. Assessing Trends in Materials Generation and Management in the United States (Dec. 2020) (Attachment 83 to Exhibit 1) (the primary categories of inorganic waste found in the U.S. MSW stream are plastics, steel, glass and aluminum, which typically do not contain large concentrations of nitrogen); Rosalinda Campuzano & Simón González-Martínez, *Characteristics of the Organic Fraction of Municipal Solid Waste and Methane Production: A Review*, 54 Waste Mgmt. 3-12 (Aug. 2016) (Attachment 84 to Exhibit 1).

[312] *See* 2023 Comments, *supra* note 1 at 39-40 (ex. 1).

[313] *Energy Recovery from the Combustion of Municipal Solid Waste (MSW)*, EPA, https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw#:~:text=The%20waste%20used%20to%20fuel,under%20conditions%20of%20excess%20airs (last updated Jan. 30, 2024) (attached as Exhibit 50); *see also* EPA, *Regulatory Impact Analysis*, *supra* note 154 at 2-9 ("[mass burn facilities] are fueled by waste that may or may not be sorted before it enters the combustion chamber as some municipalities separate the waste on the front end to extract recyclable products, while others do not."); GBB, *Draft Conceptual Design Report*, *supra* note 307 (attach. 85 to ex. 1) (A design report drafted by a waste management consulting firm for a LMWC facility seeking to improve pre-combustion sorting found that readily-available sorting technology could be used to sort out and divert thousands of tons of recyclable and compostable material with no decrease to the facility's throughput rates).

[314] Eunomia, *Mixed Waste Sorting to meet the EU's Circular Economy Objectives* at 40-41 (Feb. 2023), https://zerowasteeurope.eu/wp-content/uploads/2023/02/MWS_EunomiaReport_Feb2023-.pdf (attached as Exhibit 51); *see also* Natalie Schwertheim, *Zero Waste Europe: Mixed waste sorting vital to municipal recycling and climate change targets*, Packaging Insights (Feb. 16, 2023), https://www.packaginginsights.com/news/zero-waste-europe-mixed-waste-sorting-vital-to-municipal-recycling-and-climate-change-targets.html (attached as Exhibit 52).

[315] Schwertheim, *supra* note 314 (ex. 52).

XI. EPA SHOULD STRENGTHEN LANGUAGE THAT PROHIBITS LMWCS FROM BURNING INDUSTRIAL AND MEDICAL WASTE.

Clean Air Act Section 129 expressly mandates that EPA create distinct standards for different categories of incinerators, separating categories by the type of waste an incinerator burns such as municipal waste, hospital/medical/infectious waste, and industrial/commercial waste.[316] Accordingly, EPA's definition of "municipal solid waste" in the LMWC Standards here covers "household, commercial/retail, and/or institutional waste," but expressly "does not include . . . industrial process or manufacturing wastes [or] medical waste."[317] So LMWCs should not be burning industrial process wastes, manufacturing wastes, or medical wastes. Yet LMWCs across the country are being allowed to violate the plain language of the CAA and EPA regulations by currently burning, or seeking permission to burn, waste that is outside the scope of their designated incinerator category. For example, the Covanta Camden LMWC in New Jersey is seeking permission to burn industrial and manufacturing liquid waste from pharmaceuticals and other industrial operations, using financial compensation and promises of installing basic emissions reduction technologies as bargaining chips against communities.[318] When commenters raised this issue during Covanta Camden's Title V renewal public hearing process, the facility ignored comments about the illegality of burning liquid industrial waste at their LMWC, focusing instead on the supposed need to burn industrial waste in order to offset the costs of baghouse installation that, as the Proposed Rule recognizes, should have been required decades ago had EPA properly calculated the MACT floors in the first instance.[319] Allowing LMWCs to burn medical or industrial waste lets LMWCs avoid the emissions limits specific to medical or industrial waste incinerators, and violates the CAA's clear distinctions between incinerator categories.

As described in our 2023 Comments, medical waste incineration pose unique dangers to human health, and this added danger further reinforces the need to ensure LMWCs are not burning medical waste. Medical waste emits heavy metals, dioxins, and other highly toxic pollutants when incinerated due to the plastic-heavy composition of the waste stream.[320] Even

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[316] 42 U.S.C. § 7429(a)(1).
[317] 40 C.F.R. § 60.51b.
[318] *See* Covanta Camden, *Application for a Major Modification to Solid Waste Facility Permit* at 3.2.2 (Sept. 2022) (Attachment 71 to Exhibit 1); Covanta, *Covanta Camden AO 2021-25 Public Hearing* at 25, 26 (Dec. 8, 2022) (Attachment 72 to Exhibit 1); Camden Cnty. Energy Recovery Assocs., L.P., *City of Camden – Waterfront South & Morgan Village Covanta Community Benefits Agreement* § VI (June 2022) (Attachment 73 to Exhibit 1); s*ee also* Earthjustice, *Decades of Denial: The Environmental Injustice of EPA's Failure to Regulate Incinerators* (2023), (Attachment 1 to Exhibit 1); Matt Skoufalos, *Eleventh-Hour Deal Extends Camden County Waste Services through 2026; Emissions, Volume Still Concerning*, NJPen (Dec. 28, 2023), https://www.njpen.com/eleventh-hour-deal-extends-camden-county-waste-services-through-2026-emissions-volume-still-concerning/ (attached as Exhibit 53).
[319] Covanta Camden Title V Renewal Permit Response to Comments at 61-63, https://dep.nj.gov/wp-content/uploads/ej/covanta-camden-public-hearing-comments-072523.pdf (attached as Exhibit 54).
[320] Kevin Budris, *Burning Medical Waste is a Toxic Business*, Conservation Law Foundation (June 16, 2020), https://www.clf.org/blog/burning-medical-waste-dangers/ (Attachment 75 to Exhibit 1), *Dioxins and their effects on human health*, World Health Org. (Oct. 4, 2016), https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health (Attachment 76 to Exhibit 1) (WHO finds "Short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver

while medical waste incineration is known to have adverse health impacts, LMWCs continue to burn large amounts of medical waste with no regulation. In Oregon, for example, the Covanta Marion LMWC has been allowed to burn an exorbitant amount of medical waste, making it the 4th largest medical waste burning facility in the nation, and one that is exceeding emission limits for even large new medical waste incinerators, all while still being classified as a LMWC.[321] Partly in response to complaints about Covanta Marion, the Oregon Legislature recently passed SB 488, which caps the amount of medical waste LMWCs in their state can burn to 18,000 tons per year, among other emissions monitoring requirements.[322] Because of the LMWC Standards' lack of clarity on this point, LMWCs are burning medical and industrial waste they are not allowed to burn, and States are having to resort to incomplete legislative fixes to address the problems that EPA could easily resolve through clearer regulatory language.

EPA must clarify that an incinerator that burns any amount of hospital/medical/infectious waste is regulated as a Hospital/Medical/Infectious Waste Incinerator and an incinerator that burns any amount of industrial or manufacturing process waste is regulated as a Commercial and Industrial Solid Waste Incinerator—not as a LMWC. Without this direction from EPA, LMWCs that burn medical and/or industrial waste will continue to burn unpermitted waste without being held to the stronger emissions standards for those types of wastes. EPA must prevent this abuse by enforcing the plain language of CAA Section 129 and clarifying that the burning of any amount of medical and/or industrial waste at LMWCs is strictly prohibited, without exception.

XII. EPA SHOULD IMPOSE BETTER SAFETY CONTROLS AT LMWCS.

A. EPA Must Impose Heightened Safety Provisions to Prevent Fires and Other Accidents at Incinerators.

EPA must also include operational safety provisions in the LMWC Standards. The lack of safety provisions results in poor safety management and accidents that cause significant damage to both facilities and the surrounding communities. Our 2023 Comments mentioned the

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function. Long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system and reproductive functions."); EPA, *An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000* at xxxiv, tbl. 1-17 (Nov. 2006), http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=459709 [https://perma.cc/7J67-2VKT] (A 2006 EPA study found that medical waste incineration is the second-largest source of dioxin-like emissions nationwide.); Edyta Janik-Karpinska et al., *Healthcare Waste—A Serious Problem for Global Health*, 11 Healthcare 242 at 13-14 (2023) (attached as Exhibit 55) ("An incinerator that is not properly designed or operated, or is poorly maintained, emits toxic substances into the environment. If incinerators operate at low temperatures, they generate emissions containing dioxins and furans, which may cause health problems as they are carcinogenic."); *Health-care waste*, World Health Org. (Feb. 8, 2018), https://www.who.int/news-room/fact-sheets/detail/health-care-waste (Attachment 77 to Exhibit 1).

[321] *See* Tracy Loew, *Oregon bill to reduce emissions from Covanta Marion garbage burner could be watered down*, Statesman J. (Mar. 30, 2023), (Attachment 74 to Exhibit 1); Oregon Dept. Env't Quality, *Oregon Title V Operating Permit Review Report for Covanta Marion, Inc.*, Review Report/Permit No.: 24-5398-TV-01 at 71-73, https://www.deq.state.or.us/AQPermitsonline/24-5398-TV-01_RR_2020.PDF (attached as Exhibit 56).

[322] OR. Rev. Stat. §§ 468a.875, 468a.880; Jacob Wallace, *Oregon becomes first state to require higher standard of continuous emissions monitoring at incinerators*, WasteDive (Aug. 3, 2023), https://www.wastedive.com/news/oregon-incinerator-emissions-law-sb-488-covanta-marion/689838/ (attached as Exhibit 57).

series of five fires at the Doral, Florida incinerator, along with fires in Fairfax, Virginia and Southeastern Massachusetts.[323] After incurring extensive damage in its last fire, the Doral incinerator was permanently closed, and communities around the incinerator have since begun a nuisance lawsuit against the company for medical monitoring and damages suffered from the weeks-long fire and the uncontrolled hazardous substances they were exposed to during that time.[324] Most recently, there was a fire at an incinerator in Bangor, Maine, which went through foreclosure and is now under new management, but may similarly be permanently decommissioned.[325] Most of these fires started on the tipping floor or incinerator belt, and therefore likely could have been avoided had the facilities properly sorted the waste prior to placing it into the combustors.

EPA's LMWC Standards should require several provisions to decrease the persistent risks of incinerator fires and other accidents. The CAA includes a general duty to "design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur,"[326] Yet the LMWC Standards do not require such precautions, nor do most incinerators take those steps on their own. The LMWC Standards should require throwdown inspections for all loads (especially non-residential ones), designated no-dump zones, data collection (including detailed waste audits), and sensors, sorting, and inspection technology to sort waste before sending it to the boilers.[327] It should also necessitate a number of fire prevention and suppression technologies, such as thermal imaging cameras to monitor incoming loads, the pit, and the tipping floor.[328]

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[323] *See* 2023 Comments, *supra* note 1 at 41-42 (ex. 1); Martin Vassolo, *Doral residents say trash incinerator fire made them sick*, Axios Miami (Feb. 22, 2023), https://www.axios.com/local/miami/2023/02/22/doral-trash-incinerator-fire-health-risks (Attachment 88 to Exhibit 1); Cody Boteler, *After the fire: Revamping one of Covanta's biggest facilities after it went up in smoke*, WasteDive (Apr. 24, 2018), https://www.wastedive.com/news/after-the-fire-revamping-one-of-covantas-biggest-facilities-after-it-went/521241/ (Attachment 89 to Exhibit 1).

[324] Jacob Wallace, *Miami-Dade County, Florida, advances plans for new WTE facility and closure of Covanta site*, WasteDive (Sept. 20, 2023), https://www.wastedive.com/news/miami-dade-county-florida-advances-plans-for-new-wte-facility-and-closure/694170/ (attached as Exhibit 58); Alex DeLuca, *Covanta Loses Bid to Trash Lawsuit Over Doral's Giant Garbage Fire*, Miami New Times (Jan. 22, 2024), https://www.miaminewtimes.com/news/doral-trash-fire-lawsuit-survives-early-challenge-from-covanta-18781715 (attached as Exhibit 59).

[325] Marie Weidmayer, *Trash pile at Orrington incinerator spontaneously combusts*, Bangor Daily News (Nov. 6, 2023), https://www.newsbreak.com/orrington-me/3219695139834-trash-pile-at-orrington-incinerator-spontaneously-combusts (attached as Exhibit 60) (The incinerator had ceased operating since May 2023, but continued accepting waste until September 2023, only to have trash on the tipping floor spontaneously combust in November 2023. An hour and a half after putting out the fire, firefighters were forced to return as the flames reignited themselves.); *see also* Marie Weidmayer, *Relief for Greater Bangor's building trash crisis could come in 2024*, The Piscataquis Observer (Dec. 29, 2023) https://observer-me.com/2023/12/29/news/relief-for-greater-bangors-building-trash-crisis-could-come-in-2024/ (attached as Exhibit 61); *see also* ME 131 Leg., Legislative Doc. 2135 (Jan. 3, 2024), https://legislature.maine.gov/legis/bills/getPDF.asp?paper=HP1359&item=1&snum=131 (attached as Exhibit 62) ("Whereas, Penobscot Energy Recovery Company ceased to provide municipal solid 19 waste handling, processing and disposal services at its waste-to-energy facility as of May 2, 2023, and the auction of Penobscot Energy Recovery Company's waste-to-energy facility, which could lead to it being sold for scrap, is imminent[.]").

[326] 42 U.S.C § 7412(r)(1); *see also id.* § 7429(h)(2) (prohibiting EPA from applying Section 112(d) standards – but not other Section 112 provisions like 112(r) – to incinerators subject to Section 129 and 111 standards).

[327] *See* 2023 Comments, *supra* note 1 at 42 (ex. 1); Boteler, *supra* note 323 (attach. 89 to ex. 1).

[328] *See, e.g.,* Boteler, *supra* note 323 (attach. 89 to ex. 1).

Lastly, to reiterate our request in our 2023 pre-rulemaking comments, considering the history and high potential for uncontrolled fires at LMWCs, EPA should require LMWCs to notify their State Emergency Response Commission under the Emergency Planning and Community Right-to-Know Act ("EPCRA") Section 302.[329] Including LMWCs in EPCRA emergency response plans will provide local emergency responders and communities with the proper level of planning and safety they deserve.

B. EPA Must Strengthen the Staffing Provisions that it Weakened in its 2006 Revision to the LMWC Standards.

EPA states it has considered comments highlighting concerns around the safety and legality of allowing provisionally certified staff to operate LMWCs, and finds that its exemption does not undermine the LMWC regulation. However, as stated in our 2023 Comments, EPA's LMWC Standards must be amended because they currently conflict with CAA requirements about incinerator operator certification. The CAA requires EPA to develop a program for "training and certification" of incinerator operators and states that "it shall be unlawful to operate any [incinerator unit] unless each person with control over processes affecting emissions from such unit has satisfactorily completed a training program meeting the requirements established by [EPA]."[330] This provision is meant to protect the public from excess pollution and increased threats to health and the environment such as those that are likely to occur when incinerators malfunction or are operated under suboptimal conditions as a result of operator error.[331] Despite the CAA's mandate, EPA's regulations provide that "provisionally" certified chief facility operators and shift supervisors or people who have not "satisfactorily completed" the required training are nevertheless allowed to operate an LMWC for up to two weeks without notice to EPA, and for an unlimited time after two weeks so long as notice is given to EPA and EPA does not affirmatively disapprove.[332] And a newly promoted or transferred "provisionally certified" operator/supervisor may fulfill the duties of a fully certified operator/supervisor for up to six months with no notice or approval by EPA needed.[333]

As stated in Sierra Club's 2006 Petition under CAA Section 307(d)(7)(B), EPA should at the very least shorten the allowable time periods for provisional certification by adopting language such as in its 2005 proposed rule that stated, "A provisionally certified control room operator could stand in for up to 12 hours without notifying EPA; for up to two weeks if EPA is notified; and longer than 2 weeks if EPA is notified and the MWC owner demonstrates to EPA that a good faith effort is being made to ensure that a certified chief facility operator or certified shift supervisor is on site as soon as practicable."[334] This approach would address EPA's

[329] 42 U.S.C. § 11002.
[330] *Id.* § 7429(d).
[331] *See id.* § 7401(b)(1).
[332] 40 C.F.R. § 60.54b(c)(2) (Subpart Eb); *see also* 40 C.F.R. § 60.35b (incorporating the Subpart Eb certification standards).
[333] 40 C.F.R. § 60.54b(c)(3).
[334] 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,350; Earthjustice Petition to EPA regarding 2006 LMWC Standards at 2 (July 7, 2006) (Attachment 36 to Exhibit 1).

concerns around "improv[ing] the efficiency of the regulation"[335] without sacrificing safety to the same degree that EPA's current regulations do.

And while we appreciate that EPA is taking this opportunity to update the LMWC Rule's reference to the applicable qualification and certification standards,[336] that by itself does not address the concerns regarding training and certification, especially considering that these most recent standards are already almost a decade old and only require recertification every five years, with no retesting for new technologies, practices, and regulations required, and recertification instead being predicated only upon demonstrated employment in the level of certification being sought.[337] This means facility personnel are left managing and operating incinerators with inadequate training and outdated knowledge. EPA must go further to fill the gaps left by ASME's standards by also adopting EPA's 2005 rule proposal for operators, and must require operators undergo regular training and re-testing on updates, best practices, and more.

EPA has set up a regulatory regime in which personnel who are not fully certified operate incinerators that have inadequate safety measures, resulting in incinerators experiencing frequent malfunctions and fires that can significantly worsen air quality in the surrounding communities. EPA must therefore strengthen its regulations to require that only fully certified personnel operate LMWCs, and that additional safety measures are implemented to ensure that incinerators do not catch fire or cause other accidents.

XIII. EPA MUST ADD SITING REQUIREMENTS TO THE FINAL RULE AND SHOULD REQUIRE A CUMULATIVE IMPACTS ANALYSIS TO PROTECT ALREADY-OVERBURDENED COMMUNITIES.

Commenters are disappointed that EPA did not propose additional siting requirements for new LMWCs. EPA should issue these requirements in the final rule. CAA Section 129 requires that EPA's standards for solid waste incinerators "shall incorporate for new units siting requirements that minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health or the environment."[338] But EPA has not proposed to include anything that could be considered a "siting *requirement*" within the meeting of the Act.

In the current LMWC regulations, the provisions labeled "siting requirements" include only provisions that a proposed new facility must develop both a "materials separation plan" and a "siting analysis" for public comment.[339] This "siting analysis" must include only an analysis of the LMWC's "impact . . . on ambient air quality, visibility, soils, and vegetation" that "consider[s] air pollution control alternatives," but does not require an analysis of the

[335] Proposed Rule, 89 Fed. Reg. at 4,257-58.
[336] *Id.* at 4,258.
[337] ASME, *ASME QRO Certification For Operators of Resource Recovery Facilities: Applicant Information*, https://www.asme.org/wwwasmeorg/media/resourcefiles/career%20education/certificationtraining/qro-applicant-information.pdf (attached as Exhibit 63); *see also* NRC Study, *supra* note 10 at 215 (attach. 2 to ex. 1) ("[b]ecause operators need to be trained to handle new technologies and follow new requirements, periodic renewal of operator certification for all types of waste incineration should require retesting on new technologies, practices, and regulations.").
[338] 42 U.S.C. § 7429(a)(3).
[339] 40 C.F.R. § 60.57b.

demographics or pre-existing environmental conditions of the proposed site.[340] What's worse, the current provisions do not even suggest that a facility's permit would change in any way as a result of this public-comment exercise, or otherwise provide standards about where a new LMWC can and cannot be sited. A siting analysis that does not result in changes to LMWC emissions or location does not "minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health or the environment," as the CAA requires.[341]

EPA itself has recognized the need to improve these meager siting requirements. In two recent guidance documents about using legal tools to advance environmental justice and cumulative impacts analyses, EPA acknowledges that this CAA "siting requirement" provision is in need of revision. In these documents, EPA notes that "siting requirements for solid waste incinerators . . . could include environmental justice considerations, such as impacts on or participation in decision-making by communities with environmental justice concerns" but "[t]he regulatory text of the siting requirements does not currently require such consideration; however, EPA could consider revising the regulations to do so."[342] EPA also notes that "[r]egulations implementing this [siting requirement] provision could be revised to incorporate a cumulative risk assessment into the siting requirements" that would, at a minimum, cover the pollutants listed under Section 129.[343]

Concomitant with these environmental-justice and cumulative-impact considerations is the obligation to comply with Title VI of the Civil Rights Act when siting and permitting LMWCs. That law, and EPA's implementing regulations, prohibit recipients of federal funding, like State permitting agencies, from discriminating "on the ground of race, color, or national origin" in any of their programs or activities, including permitting programs.[344] As EPA recently reiterated, "State, local, and other recipients of federal financial assistance have an independent obligation to comply with federal civil rights laws with respect to all of their programs and activities, including environmental permitting programs."[345] But all too often, States fail to comply with these basic civil-rights obligations when permitting new and existing facilities. Instead, the environmental justice communities themselves must submit complaints of Title VI violations to EPA for the Agency to investigate after the violation has already taken place – including complaints concerning LMWC facilities.[346] The fact that nearly 80% of the country's LMWC facilities are located in environmental justice communities shows that few if any States have complied with these requirements when approving new LMWCs.[347]

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[340] *Id.* § 60.57b(b)(1), (2).
[341] 42 U.S.C. § 7429(a)(3).
[342] EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 18 at 12-13 (attach. 25 to ex. 1).
[343] EPA, *EPA Legal Tools to Advance Environmental Justice: Cumulative Impacts Addendum*, *supra* note 20 at 10 (attach. 95 to ex. 1).
[344] 42 U.S.C. § 2000d; 40 C.F.R. Part 7.
[345] EPA, *Interim Environmental Justice and Civil Rights in Permitting Frequently Asked Questions* at 6 (Aug. 2022) (Attachment 96 to Exhibit 1).
[346] *See, e.g.,* Earthjustice, Civil Rights Complaint against the Florida Department of Environmental Protection, Environmental Injustices in Doral and Statewide from Incinerator Permitting at 9-15, 27-33 (Mar. 31, 2022) (alleging, among other allegations, that Florida's "permitting [of] incinerators without considering disproportionate environmental impacts on people of color" violates Title VI and has resulted in 70% of the state's LMWC facilities being located in communities of color and linguistically isolated communities) (Attachment 97 to Exhibit 1).
[347] *See supra* Section I.

This rulemaking provides EPA with an opportunity to use its clear legal authority to address environmental injustice. And, indeed, EPA must improve upon its current approach as Congress has unambiguously mandated that EPA must set siting requirements to minimize health and environment risks from LMWCs.[348] EPA should heed its own recommendations to strengthen its LMWC Standards to ensure that the siting of new LMWCs do not cause or contribute to disproportionate cumulative impacts or otherwise violate civil rights or environmental justice principles.

XIV. EPA MUST REMOVE IMPERMISSIBLE EXEMPTIONS FOR RECYCLING UNITS AND CEMENT KILNS.

EPA must remove the current LMWC Standards' baseless exemptions for plastic/rubber recyclers and cement kilns, which are contrary to the CAA. The current LMWC Standards' definition of "municipal waste combustor" expressly exempts both "pyrolysis/combustion units located at a plastics/rubber recycling unit" and "cement kilns firing municipal solid waste."[349] But the CAA requires EPA to apply these LMWC Standards to *all* "solid waste incineration units with capacity greater than 250 tons per day combusting municipal waste,"[350] and does not allow EPA to fashion a new exemption out of whole cloth.[351] While the rules impose a number of recordkeeping requirements on facilities seeking to claim the "plastics/rubber recycling unit" exemption,[352] no provision of the CAA or Section 129 says that a facility can avoid emission limits and other requirements simply by making records in the course of business. Meanwhile, the "cement kilns" exemption does not even require such basic recordkeeping. EPA has no authority to exempt any municipal solid waste combustor with capacity greater than 250 tons per day from these rules, so it should remove these impermissible exemptions accordingly.

[348] 42 U.S.C. § 7429(a)(3)
[349] 40 C.F.R. § 60.51b.
[350] 42 U.S.C. § 7429(a)(1)(B).
[351] *See New York v. EPA*, 413 F.3d 3, 41 (D.C. Cir. 2005) ("Absent clear congressional delegation . . . EPA lacks authority to create an exemption from [a statutory provision] by administrative rule.").
[352] 40 C.F.R. § 60.50b(m).

XV. CONCLUSION

EPA's proposed revisions to its LMWC Standards come over thirty years after Congress told EPA to protect the public from the harms of incinerator pollution. The Proposed Rule is a welcome, if overdue, step in the right direction towards achieving Congress's mandate. But as explained above, the Clean Air Act compels EPA to go even further to ensure that environmental justice communities are fully protected. EPA has committed to advancing equitable outcomes in environmental justice communities and building meaningful engagement with these communities. The time to deliver on those commitments is now. EPA's final rule must include the changes outlined above to ensure maximum protections for surrounding communities.

Jonathan Smith
Casandia Bellevue
Colin Parts
Lisa Fuhrman
Earthjustice
jjsmith@earthjustice.org

Leah Kelly
Environmental Integrity Project
lkelly@environmentalintegrity.org

Taylor Thomas
East Yard Communities for Environmental Justice

Maria Lopez-Nuñez
Ironbound Community Corporation

Jane Williams
Sierra Club

Carlos Sanchez
South Baltimore Community Land Trust

Cindy Luppi
Clean Water Action