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Washington, DC 20460
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**Re: Pre-Rulemaking Comments on Large Municipal Waste Incinerator Standards
[EPA-HQ-OAR-2022-0920]**

East Yard Communities for Environmental Justice, Ironbound Community Corporation, Sierra Club, Earthjustice, and Environmental Integrity Project submit these comments on the U.S. Environmental Protection Agency's ("EPA's") non-rulemaking docket for its emission standards for Large Municipal Waste Combustors ("LMWCs") under Section 129 of the Clean Air Act ("CAA" or "the Act"), EPA-HQ-OAR-2022-0920. Congress gave EPA broad authority under Section 129 to reduce incinerator emissions, requiring EPA to protect the public from the harms posed by incineration units through emission limits, pre-combustion controls, siting requirements, and other measures. But, as explained further below, EPA's current LMWC Standards fail to satisfy these minimum requirements of the CAA and fail to adequately protect incinerator-adjacent environmental justice communities across the country from the copious amounts of air pollution these facilities emit. EPA admitted a decade and a half ago that these standards needed to be updated, and communities have been waiting for an update ever since. EPA must exercise its authority as Congress directed and strengthen the LMWC Standards so that they comply with the CAA and protect surrounding communities.

I. LARGE INCINERATORS HARM ENVIRONMENTAL JUSTICE COMMUNITIES.

Municipal solid waste incinerators have been polluting overburdened communities for decades.¹ Multiple studies from the National Research Council (“NRC”) and others show that incinerators emit significant amounts of pollution that harms the health of surrounding communities.² Incinerators have been facilities of concern to the environmental justice movement since its start.³ Today, 79% of the nation’s large municipal solid waste incinerators are in environmental justice communities.⁴ The dirtiest and highest-emitting of these incinerators are predominantly located in environmental justice communities, as well.⁵ With most of today’s incinerators having been built in the 1980’s, and only one incinerator built after 1995, most incinerators have exceeded their 30-year useful lives – but they continue to operate with outdated technology and insufficient pollution control devices.⁶

Decades ago, Congress recognized the harms from incinerators and required EPA to act quickly to address these harms. In 1990, Congress amended the Clean Air Act to add Section 129 “Solid waste combustion” specifically about incinerators, setting forth minimum requirements and a timeline for EPA to issue new emission limits on incinerators.⁷ Congress required the emission limits to be set at levels at least as stringent as the actual emissions of the least-emitting incinerators, so that the dirtiest incinerators would have to clean up to the levels of the best-performing incinerators.⁸ Among all incinerator categories, Congress required EPA to issue the emission standards for large municipal solid waste incinerators the fastest, in just 12 months.⁹

¹ See Earthjustice, *Decades of Denial: The Environmental Injustice of EPA’s Failure to Regulate Incinerators* (2023), https://earthjustice.org/wp-content/uploads/2023/06/epa-incinerator-standards-report_earthjustice_2023.pdf [hereinafter Decades of Denial Report] (attached as Attachment 1).

² 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] (attached as Attachment 2); 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) (attached as Attachment 3); Silvia Candela et al., *Air Pollution from Incinerators and Reproductive Outcomes: A Multisite Study*, 24 Epidemiology 863–70 (2013) (attached as Attachment 4); 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) (attached as Attachment 5); 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) (attached as Attachment 6); 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] (attached as Attachment 7).

³ Tishman Center Report, *supra* note 2 at 13 (attach. 7); see also *Environmental Justice Timeline*, EPA, <https://www.epa.gov/environmentaljustice/environmental-justice-timeline> [<https://perma.cc/5UYA-JNRR>] (last updated July 18, 2022) (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.”).

⁴ Tishman Center Report, *supra* note 2 at 4 (attach. 7).

⁵ *Id.* at 39-41 and App. E.

⁶ *Id.* at 8, 22; Energy Recovery Council, *2018 Directory of Waste-to-Energy Facilities*, <https://gwcouncil.org/wp-content/uploads/2023/02/WtE-facilities-2018-directory.pdf> [<https://perma.cc/V92N-23XW>].

⁷ 42 U.S.C. § 7429.

⁸ *Id.* § 7429(a)(2).

⁹ *Id.* § 7429(a)(1)(B).

Congress then required EPA to review and revise the standards every five years, so that as control technology improves, the dirtiest incinerators continue to clean up.¹⁰

EPA has never met the deadlines of Section 129. EPA's first standards for large municipal waste incinerators came in 1995, four years after Congress's 1991 deadline, and its first (and so far, only) revision to those standards came in 2006, six years after the 2000 deadline to review every five years.¹¹ EPA's second revision of these standards was due in 2011, so it is now a *dozen* years late. In each instance, EPA began working on the standards or their revisions only after it was sued for missing the deadlines.¹²

To make matters worse, none of these outdated municipal waste incinerator standards has ever met the minimum stringency requirements that Congress required – so far. For example, instead of setting the standards at least as stringent as the *actual performance* of the lowest-emitting incinerators, as the CAA requires, these standards instead are set to pre-existing State permit limits or assumptions about control technology, resulting in emission limits that are many times higher than actual performance. The D.C. Circuit has on multiple occasions declared that setting these standards in a way that does not reflect actual performance violates the CAA.¹³ In 2007, EPA admitted that its large municipal solid waste standards had to be revised because the limits were set using impermissible methods.¹⁴ Fifteen years later, EPA has still not fixed these illegal standards.

Because of EPA's failure to update these incinerator standards in the manner and at the pace that Congress required, decades-old, dirty incinerators continue to operate with decades-old technology. For example, many incinerators continue to operate without baghouses to reduce particulate emissions, despite this technology being widely used among other types of facilities.¹⁵ And even though selective catalytic reduction is standard technology to reduce emissions of smog-forming oxides of nitrogen among other types of power plants, only one large incinerator in the country currently uses that technology, and many large incinerators do not even

¹⁰ *Id.* § 7429(a)(5).

¹¹ 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]; 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].

¹² See 1995 LMWC Standards, 60 Fed. Reg. at 65,390 (discussing delay litigation that preceded 1995 LMWC Standards); Revised Partial Consent Decree, *Sierra Club v. Whitman*, No. 01-1537 (D.D.C., May 22, 2003) (consent decree from delay litigation that preceded 2006 LMWC Standards); *East Yard Communities for Environmental Justice v. EPA*, No. 22-00094 (D.D.C.) (delay litigation that preceded EPA's current reconsideration of LMWC standards); Petition for Writ of Mandamus, *East Yard Communities for Environmental Justice v. EPA*, No. 21-1271 (D.C. Cir., Dec. 21, 2021) [hereinafter Mandamus Petition] (attached as Attachment 8) (mandamus litigation that preceded EPA's current reconsideration of LMWC standards).

¹³ See, e.g., *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 953–54 (D.C. Cir. 2004); *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d 855, 861–66 (D.C. Cir. 2001).

¹⁴ EPA Motion for Voluntary Remand, *Sierra Club v. EPA*, No. 06-1250 (D.C. Cir., Nov. 9, 2007) [hereinafter EPA Remand Motion] (Exhibit 2 to Mandamus Petition [attach. 8]).

¹⁵ Memorandum from Eastern Research Group to EPA, 2000 National Inventory of Large Municipal Waste Combustion (MWC) Units at Table B (June 12, 2002), in Rulemaking Docket No. EPA-HQ-OAR-2003-0072, <https://www.regulations.gov/document/EPA-HQ-OAR-2003-0072-0182> [hereinafter 2002 National Inventory of Large MWCs] (attached as Attachment 9).

use less-protective selective non-catalytic reduction technology.¹⁶ While advocates and even local governments have been demanding lower emissions from incinerators, their efforts are stymied because EPA's outdated, permissive standards have not been updated.¹⁷ EPA's permissive standards are allowing old, dirty incinerators to stay dirty.

These weak standards have allowed incinerators to continue to pollute already overburdened environmental justice communities. Over three decades have passed since the 1990 CAA Amendments – in which Congress ordered EPA to fix the problem of incinerator pollution by the early 1990's – but environmental justice communities are still waiting for the protections that Congress promised. Consistent with this Administration's commitment to making environmental justice a centerpiece of EPA's mission,¹⁸ EPA should strengthen its LMWC Standards to protect communities who have suffered from incinerator pollution for far too long.

II. EPA MUST REVISE THE LMWC NUMERICAL EMISSION LIMITS TO PROTECT COMMUNITIES AND COMPLY WITH THE CAA.

Communities across the country have waited for over three decades for EPA to calculate incinerator emission limits in the way mandated by the Clean Air Act. EPA must not delay any further, and finally revise the LMWC Standards so that they comply with the Act.

A. EPA Must Recalculate the LMWC MACT Floors Because the Current Floors Do Not Comply with the CAA.

The 1990 CAA Amendments require EPA to set LMWC emission standards that “reflect the maximum degree of reduction in emissions” that EPA “determines is achievable.”¹⁹ This maximum achievable control technology or “MACT” standard has an important requirement: the standard for new units “shall not be less stringent than the emissions control that is achieved in practice by the best controlled similar unit,” while the standard for existing units “shall not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units in the category.”²⁰ Thus, EPA cannot set standards that are *less* stringent than this “MACT floor,” but EPA *can* go “beyond the floor” and set standards that are *more* stringent than the MACT floor. As explained further below, EPA must recalculate the LMWC MACT Floors so that they are based on actual performance, do not reflect impermissible subcategorization, do not allow for alternate compliance methods, and are not weakened by unwarranted statistical alterations.

¹⁶ *Id.*; 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>].

¹⁷ *See, e.g., Wheelabrator Baltimore, L.P. v. Mayor & City Council of Baltimore*, 449 F. Supp. 3d 549, 561 (D. Md. 2020) (striking down City of Baltimore ordinance because, in part, it would have required more emission reductions from incinerators than what EPA's LMWC Standards require).

¹⁸ *See, e.g., EPA, E.O. 13985 Equity Action Plan* (Apr. 2022), https://www.epa.gov/system/files/documents/2022-04/epa_equityactionplan_april2022_508.pdf (attached as Attachment 10).

¹⁹ 42 U.S.C. § 7429(a)(2).

²⁰ *Id.* § 7429(a)(2).

1. EPA Must Set MACT Floors Based on Actual Performance.

EPA admits it has never set the LMWC MACT floors in the manner required by the CAA. The Act requires EPA to set MACT floors “based on the emission level actually achieved by the best performers (those with the lowest emission levels).”²¹ But the MACT Floors that EPA set as part of its 1995 standards were based on EPA’s assessment of the performance of control technologies (for new units) and on EPA’s review of State air permit limits (for existing units), with no explanation tying these levels to the actual performance of the best controlled unit(s).²² A series of subsequent D.C. Circuit cases found it impermissible to base MACT floors on control technology or State permit limits without a reasonable explanation tying these factors to actual performance.²³ Nevertheless, in its 2006 revision of the LMWC Standards, EPA chose not to recalculate the 1995 MACT Floors in a manner consistent with the D.C. Circuit precedent,²⁴ even as it admitted that the record showed that actual incinerator emissions were “more than 100 times [lower] than . . . the level that their State permits allowed,”²⁵ suggesting that the 1995 MACT Floors were up to 100 times higher than they should be.

But after the 2006 LMWC Standards were challenged in the D.C. Circuit, EPA changed its position and admitted that the Agency must “re-analyze” the MACT floors because they do not comport with that court’s precedent.²⁶ Based on that representation, in 2008, the D.C. Circuit remanded the LMWC Standards to EPA for the Agency to review the standards.²⁷

In the intervening years, EPA has corrected the improperly calculated MACT floors for *other* categories of incinerators, finding that the use of actual emissions data was the “most reliable” method because of the high “uncertainty” about whether State permit limits or control

²¹ *Sierra Club v. EPA*, 479 F.3d 875, 880 (D.C. Cir. 2007) (discussing MACT floors under CAA Section 112, which are analogous to Section 129 MACT floors).

²² 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).

²³ See *Sierra Club v. EPA*, 479 F.3d 875, 880–83 (D.C. Cir. 2007) (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).

²⁴ See 2006 LMWC Standards, 71 Fed. Reg. at 27,327–28 (declining to reconsider the 1995 MACT Floors).

²⁵ Comments of Earthjustice on 2005 LMWC Standards Proposed Rule at 4 (attached to Exhibit 1 of Mandamus Petition [attach. 8]).

²⁶ EPA Remand Motion, *supra* note 14 at 7–9 (Exhibit 2 to Mandamus Petition [attach. 8]) (noting that *Sierra Club v. EPA*, 479 F.3d 875 (D.C. Cir. 2007) “holds that EPA cannot base its floors exclusively on technology”); EPA’s Reply in Further Support of Its Motion 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]) (“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.”).

²⁷ Order, *Sierra Club v. EPA*, No. 06-1250 (D.C. Cir., Feb. 15, 2008) (Exhibit 4 to Mandamus Petition [attach. 8]).

technology performance reflected the emissions achieved by the best-performing unit(s).²⁸ But EPA’s revision of the LMWC MACT Floors languished. 15 years have passed since the D.C. Circuit’s order – and over 30 years have passed since the 1990 CAA Amendments – and EPA still has not issued LMWC Standards with MACT floors that comply with the Act. EPA must revise the LMWC Standards and recalculate the MACT floors as required by the Act.

It is likely that EPA’s recalculation of the MACT Floor based on actual performance – as the CAA demands – will result in limits that are significantly more protective than EPA’s current standards. Promotional materials for 34 Covanta-operated LMWC facilities – representing 99 LMWC units – boast that the facilities’ actual emissions are up to 99% below EPA’s emission limits. For example, Covanta reports that 23 of these facilities – representing 68 units (nearly half of LMWC units nationwide)²⁹ – emit lead at levels at least 99% lower than EPA’s limit. This suggests that EPA’s current lead emission limits are some 100 times higher than if EPA had properly calculated the MACT floor from among these units. So Covanta’s own materials suggest that the current LMWC emission limits are orders of magnitude higher than what they would be with properly-calculated MACT floors.

Table 1: Covanta’s Reported Actual Emissions Below LMWC Standards, Per Pollutant³⁰									
	Dioxins	Hg	CO	Pb	PM	HCl	Cd	NOx	SO2
Average	93%	96%	76%	98%	90%	77%	97%	34%	73%
Range	77-99%	87-99%	10-93%	74-99.6%	72-98%	53-95%	61-99.6%	6-59%	2-97%

And many of the MACT Floors for new sources will likely be determined by the actual performance of the Palm Beach Renewable Energy Facility II (“PBREF II”) in Florida.³¹ PBREF II, which commenced operation in 2015,³² is the only incinerator built in the country since 2010 and is the best controlled overall facility in a field of aging plants. For example, PBREF II uses better-performing selective catalytic reduction technology seen at no other LMWC facility.³³ And while, as noted above, EPA must set MACT Floors based on actual performance and not State permit limits, the State permit limits that apply to PBREF II suggest that PBREF II is actually performing at levels far below EPA’s current limits. As the table below shows, EPA’s current limits for new units are up to 3.6 times higher than the PBREF II permit limits. And since

²⁸ See, e.g., Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 73 Fed. Reg. 72,962, 72,970 (Dec. 1, 2008).

²⁹ In a March 21, 2023 webinar, EPA noted that its current LMWC inventory consists of 152 units at 57 facilities in 18 states.

³⁰ 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 (collectively attached as Attachment 11). Emissions data is collected from the year 2020, apart from Covanta Camden (collected from 2021). Covanta Essex data that compared actual emissions to State-specific limits (as opposed to EPA’s LMWC Standards) were not included in range or average calculations.

³¹ See 42 U.S.C. § 7429(a)(2) (“[t]he degree of reduction in emissions that is deemed achievable . . . shall not be less stringent than the emissions control that is achieved in practice by the best controlled similar unit.”).

³² Energy Recovery Council, *2018 Directory of Waste-to-Energy Facilities*, *supra* note 6 at 22.

³³ Federal “Good Neighbor Plan” for the 2015 Ozone National Ambient Air Quality Standards, 88 Fed. Reg. 36,654, 36,837 (June 5., 2023) [hereinafter Good Neighbor Rule].

PBREF II's actual performance is likely far lower than even its State permit limits, the recalculated MACT Floors will likely be even lower than the State permit limits.

Table 2: Comparison of Current LMWC Standards to PBREF II Limits		
Pollutant	New Source LMWC Standards ³⁴	PBREF II ³⁵
Mercury	50 µg/dscm	25 µg/dscm
Dioxins/Furans	13 ng/dscm	4.2 ng/dscm* 13 ng/dscm
Lead	140 µg/dscm	125 µg/dscm
SO ₂	30 ppmvd	24 ppmvd
NO _x	150-180 ppmvd – 24 hour	50 ppmvd - 24-hour 45 ppmvd - annual
PM	20 mg/dscm	12 mg/dscm

All limits shown are measured at 7% oxygen.

*The 4.2 ng/dscm dioxin/furan limit is the primary limit as it was set based on performance tests after the facility became operational.

Nor should EPA have concerns that recalculating the MACT Floors would result in “MACT-on-MACT” standards – a label that industry has used to oppose the recalculation of MACT floors or the lowering of MACT standards.³⁶ As EPA has previously stated, “nothing in the Clean Air Act . . . suggests that [EPA] is prohibited from resetting the MACT floors in order to correct its own errors.”³⁷ Because EPA has never properly calculated the MACT floors for LMWCs, EPA would be “functionally regulating on a blank slate,” and re-calculation would be equivalent to “the floor-setting that is the initial step in establishing emissions standards.”³⁸ So here, if anything, we do not have “MACT-on-MACT” but instead we have, to quote EPA, “MACT-on-Unsupportable-Standards-Erroneously-Labeled-as-MACT.”³⁹ And even in situations where the prior MACT floors were properly calculated, if actual performance shows that facilities are achieving emissions lower than EPA limits, then the CAA compels EPA to lower the limits because they no longer reflect the “maximum” emission reductions achieved in practice – indeed, EPA has lowered MACT floors under similar situations in the past.⁴⁰ In short, nothing in the CAA prohibits EPA from lowering MACT emission limits after they are set, and that is especially true for instances like here, where EPA has not even properly calculated the MACT Floor in the first instance.

³⁴ 40 C.F.R. § 60.52b.

³⁵ 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 25-26 (Apr. 8, 2021), <https://fldep.dep.state.fl.us/air/emission/apds/listpermits.asp> [hereinafter PBREF II Permit] (attached as Attachment 12).

³⁶ *See Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d 420, 424–26 (D.C. Cir. 2011).

³⁷ *Id.* at 425.

³⁸ *Id.* at 426.

³⁹ *Id.* at 425.

⁴⁰ *See* National Emission Standards for Hazardous Air Pollutants: Ferroalloys Production, 79 Fed. Reg. 60,238-01, 60,271 (Oct. 6, 2014) (lowering MACT emission limits because “[actual] particulate matter (PM) emissions . . . were far below the level specified in the current NESHAP [National Emission Standards for Hazardous Air Pollutants], indicating improvements in the control of PM emissions since promulgation of the current NESHAP.”).

2. EPA Should Do Away with Illegal or Arbitrary Subcategorizations When Recalculating the MACT Floor.

EPA's recalculation of the MACT floors must also rectify a flaw of the 1995 MACT Floors, which subcategorized incinerators that used electrostatic precipitator ("ESP") control technology and those that used other control technology like fabric-filter baghouses, and separately calculated the MACT Floor for each subcategory. As a result, for nearly a decade and a half, EPA allowed existing incinerators with ESPs to emit twice as many dioxins and furans as existing incinerators with baghouses.⁴¹ EPA lowered the limit for incinerators with ESPs in 2009, but that limit remains higher than the limit for incinerators with baghouses.⁴²

The CAA allows EPA to "distinguish among classes, types . . . and sizes of units" when setting standards,⁴³ but as EPA itself admits, the CAA does *not* allow subcategorization by control device. In 2004, EPA considered this issue in a MACT-based rulemaking for a National Emission Standard for Hazardous Air Pollutants ("NESHAP") under Section 112, which similarly allows EPA to "distinguish among classes, types, and sizes of sources" when setting MACT standards.⁴⁴ There, EPA explained that distinguishing by control device is "legally impermissible" because it violates the CAA's mandate to set floors based on "best performing" sources, stating:

Normally, it is legally impermissible to subcategorize based on the type of air pollution control device. *See Chemicals Manufacturers Association v. EPA*, 870 F. 2d 177, 218-19 (5th Cir. 1989) *modified on different grounds on rehearing* 884 F. 2d 253 (5th Cir. 1989) (rejecting subcategorization based on type of control device for purposes of the technology-based standards under the Clean Water Act, which are analogous to the CAA section 112 standards). The problem with subcategorizing on the basis of pollution control device, quite simply, is that it leads to situations where floors are established based on performance of sources that are not the best performing. For example, suppose a source category consists of 100 sources using the same process and having the same emission characteristics, but that 50 sources use control device A to control [hazardous air pollutant] emissions, and 50 use control device B which is two orders of magnitude less efficient. If one subcategorized based on the type of pollution control device, the MACT floor for the 50 sources with control device B would reflect worst, rather than best performance.⁴⁵

Thus, applying EPA's 2004 explanation here, EPA's dioxin/furan emission limit for incinerators with ESPs "reflect[s] worst, rather than best performance," because it is calculated

⁴¹ 1995 LMWC Standards, 60 Fed. Reg. at 65,416 (setting a 60 ng/dscm dioxin/furan limit for incinerators with ESPs, and a 30 ng/dscm dioxin/furan limit for incinerators without ESPs).

⁴² 40 C.F.R. § 60.33b(c)(1)(ii), (iii) (setting, on or after April 28, 2009, a 35 ng/dscm dioxin/furan limit for incinerators with ESPs, and a 30 ng/dscm dioxin/furan limit for incinerators without ESPs).

⁴³ 42 U.S.C. § 7429(a)(2).

⁴⁴ *Id.* § 7412(d)(1).

⁴⁵ National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants, 69 Fed. Reg. 394, 403 (Jan. 5, 2004).

by completely ignoring the better performance of incinerators with baghouses.⁴⁶ Subcategorization by control device is also arbitrary and contradicts the CAA because it disincentivizes LMWCs from adopting better control technologies – or could even incentivize them to downgrade their control technologies – in order to enjoy the more forgiving, higher emission limit.

Despite the clarity of EPA’s 2004 explanation about why the CAA does not permit the Agency to subcategorize based on control technology, EPA did not apply this reasoning to its review of the LMWC Standards the very next year. In its 2005 Proposed Standards, EPA declined to apply the baghouse-based limits to incinerators with ESPs, claiming that the cost-effectiveness for these incinerators to install a baghouse would be “excessive.”⁴⁷ Neither the 2005 Proposed Standards nor the finalized 2006 Standards recognize that it was “legally impermissible” for EPA to subcategorize based on control technology in the first place,⁴⁸ nor that it is impermissible for EPA to consider costs when calculating MACT floors.⁴⁹ It is especially egregious for EPA to continue to apply an emission limit based on “worst . . . performance” to incinerators with ESPs given that, as EPA recognized, 87% of LMWCs were already equipped with baghouses at the time,⁵⁰ so baghouse control technology was clearly “achievable” then, as it is now.⁵¹

It was only until the 2006 Standards were before the D.C. Circuit that EPA finally recognized the infirmity of this subcategorization, and EPA promised that, on remand, “EPA will re-evaluate whether units with electrostatic precipitators, as opposed to fabric filters, are part of the top 12 percent of sources.”⁵² But fifteen years after the court ordered EPA to review the Standards, this illegal subcategorization remains in place.

Communities across the country are suffering real-world impacts because EPA left this impermissible subcategorization on the books. For example, the Covanta incinerator in Newark, New Jersey finally installed a baghouse in 2016 only after a multi-year campaign by community groups that included a citizen suit, a Title V petition to EPA, and hundreds of members of the public appearing at hearings.⁵³ The Covanta incinerator in Camden, New Jersey, meanwhile,

⁴⁶ *Id.*

⁴⁷ Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors, 70 Fed. Reg. at 75,355 (Dec. 19, 2005) [hereinafter 2005 LMWC Standards Proposed Rule].

⁴⁸ National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants, 69 Fed. Reg. at 403.

⁴⁹ See *United States Sugar Corp. v. EPA*, 830 F.3d 579, 594 (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) (“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).

⁵⁰ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,351, 55–56. The percentage of LMWC units with baghouses has likely only increased since 2005, as some incinerators like Covanta Essex have upgraded their emission controls in response to community pressure and litigation. See Decades of Denial Report, *supra* note 1 at 8-9 (attach. 1).

⁵¹ *Nat. Res. Def. Council v. Thomas*, 805 F.2d 410, 423 (D.C. Cir. 1986) (Noting that standards are achievable if they can be achieved by “a predominant segment of the industry.”).

⁵² EPA Remand Motion, *supra* note 14 at 11 (Exhibit 2 to Mandamus Petition [attach. 8]).

⁵³ Decades of Denial Report, *supra* note 1 at 8-9 (attach. 1); News Release, NJDEP, Christie Administration Announces Completion of Major Project to Improve Emissions from Newark Waste-to-Energy Plant (Dec. 22,

continues to operate *without* a baghouse. Not surprisingly, it is the #1 stationary-source emitter of cadmium and hydrogen chloride in New Jersey, and #3 emitter of mercury and lead.⁵⁴ In response to community pressure to install a baghouse, Covanta Camden says it will make the long-overdue upgrades but only if it is allowed to accept and burn liquid industrial wastes, saying that the baghouse will be funded in part by increased revenues from the burning of this industrial waste.⁵⁵ In short, Covanta is using a promise to install a baghouse – which should have been installed decades ago – as a pawn in order to be allowed to burn industrial waste – which, as explained below in Section VI, must not be allowed under EPA’s rules. But if EPA had properly set MACT floors from the start, without any carve-out for incinerators with weaker controls like ESPs, the incinerators in Camden, Newark, and other communities across the country would likely have installed their baghouses decades ago.

In addition to removing the subcategorizations that are not allowed by law, EPA must also do away with discretionary subcategorizations that serve only to allow more-polluting types of incinerators to continue to pollute more. For example, the current LMWC Standards apply different carbon monoxide limits to *ten* different categories of LMWCs based on combustor technology, and the Standards apply different NOx limits to *nine* different categories of LMWCs based on combustor technology and whether the facility is using an emission averaging plan.⁵⁶ But as the NRC explained, all LMWC categories use the same air pollution controls, so “allowing weaker limitations for some designs or sizes provides little incentive for [the more polluting] facilities to pursue further achievable emission reductions.”⁵⁷ Similarly, “having multiple emission standards for similar devices is inconsistent with minimizing risks of health effects.”⁵⁸ Thus, EPA should heed NRC’s recommendation that “[a]ll regulated . . . municipal solid-waste combustors should have uniform limits for each pollutant, irrespective of plant size, design, age, or feedstock, as is the case for hazardous-waste combustors.”⁵⁹

Moreover, the way that EPA differentiates the emission limits among the subcategories often does not make sense. EPA, for example, set more lenient NOx limits for LMWCs with rotary combustor technology as opposed to standard mass burn waterwall facilities.⁶⁰ But Covanta itself touts that “rotary combustion technology [even without add-on controls] . . . outperforms and produces lower emissions of [NOx], for example, than mass burn grate facilities with [NOx] control systems.”⁶¹ So if EPA truly set emission limits based on performance as the

2016), https://www.nj.gov/dep/newsrel/2016/16_0126.htm (attached as Attachment 13); Tom Johnson, *For Smog Control at Incinerator, Public Pressure Played Key Role*, NJ SPOTLIGHT NEWS (Apr. 5, 2012), <https://www.njspotlightnews.org/2012/04/12-0405-0033/> (attached as Attachment 14).

⁵⁴ Earthjustice & Vermont Law School Environmental Advocacy Clinic, *New Jersey’s Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey’s Frontline Communities* at 5 (2020), https://earthjustice.org/wp-content/uploads/nj-incinerator-report_earthjustice-2021-02.pdf [hereinafter NJ Dirty Secret Report] (attached as Attachment 15).

⁵⁵ Decades of Denial Report, *supra* note 1 at 4-5 (attach. 1); *Camden Green Initiative Frequently Asked Questions*, Covanta, <https://info.covanta.com/camden-green-initiative-faqs> (last visited May 30, 2023) (attached as Attachment 16).

⁵⁶ See 40 C.F.R. § Pt. 60, Subpt. Cb, Tbls. 1 & 2; 40 C.F.R. § 60.53b.

⁵⁷ NRC Study, *supra* note 2 at 202 (attach. 2).

⁵⁸ *Id.* at 203.

⁵⁹ *Id.* at 8.

⁶⁰ 40 C.F.R. § Pt. 60, Subpt. Cb, Tbls. 1 & 2.

⁶¹ *Covanta Delaware Valley FAQs*, Covanta, <https://www.covanta.com/where-we-are/our-facilities/delaware-valley/faqs> (last visited May 31, 2023) (attached as Attachment 17).

CAA requires, then presumably the better-performing rotary combustor LMWCs would have the lower emission limit, not the other way around. EPA's revisions to the LMWC Standards should do away with these arbitrary subcategorizations of LMWCs and apply uniform MACT standards to all LMWCs.

In short, EPA must not continue to give laggard incinerators a pass simply because these companies do not value the lives and health of surrounding communities enough to bother to make industry-standard emission control upgrades. EPA must revise the LMWC Standards and calculate MACT floors that do not separately categorize incinerators in a way that keeps the dirtiest incinerators dirty.

3. EPA Must Not Set MACT Floors that Allow for Alternate Compliance Methods Based on Percent Reduction of Pollution.

EPA must also remove emission limits that give LMWCs the choice to comply with a percent-reduction standard instead of a numerical emission limit – neither the CAA nor the D.C. Circuit allow MACT floors to be set in such a manner. As noted above, the Act expressly requires EPA to set “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).⁶² But for mercury, sulfur dioxide, and hydrogen chloride, the current LMWC Standards allow incinerators to choose to comply with either a numerical mass-based emission limit, or a limit expressed as a percent in emission reduction, “whichever is less stringent.”⁶³ As the NRC has noted, this 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.”⁶⁴

It plainly contravenes the language of the Act to allow LMWCs to eschew the statutorily required “numerical emission limitations” in favor of this percent-reduction limit.⁶⁵ Moreover, the Act says that emission limits “shall not be less stringent” than the MACT floors,⁶⁶ so it additionally contravenes the CAA to allow incinerators to choose to comply with a “less stringent” limit whenever complying with the MACT floor becomes inconvenient for the LMWC.

Indeed, the D.C. Circuit rejected this “choose the less stringent” approach to MACT floors when considering EPA's brick kiln NESHAP. There, EPA gave a brick kiln subcategory “a choice of three emissions limits expressed in different units of measurement for mercury (mass of pollutant per ton of bricks produced, pounds per hour, or concentration) and non-mercury emissions (pounds per hour and options that limit particulate matter as a surrogate).”⁶⁷ But the Court explained that “EPA's discretion does not extend to defining several different ‘best’ metrics within the same category and allowing emitters to comply with the most favorable

⁶² 42 U.S.C. § 7429(a)(2), (4).

⁶³ 40 C.F.R. § 60.33b(a)(3), (b) (mercury, sulfur dioxide, and hydrogen chloride limits for existing incinerators); *id.* § 60.52b(a)(5), (b) (mercury, sulfur dioxide, and hydrogen chloride limits for new incinerators).

⁶⁴ NRC Study, *supra* note 2 at 192.

⁶⁵ 42 U.S.C. § 7429(a)(4).

⁶⁶ *Id.* § 7429(a)(2).

⁶⁷ *Sierra Club v. EPA*, 895 F.3d 1, 15 (D.C. Cir. 2018) (citing 80 Fed. Reg. at 65,474, 65,530–31).

standard.”⁶⁸ The Court therefore granted the petitioners’ challenge on this point, “[b]ecause the EPA’s provision of alternate emissions standards is contrary to the statutory requirement of a standard based on the ‘best’ performing sources.”⁶⁹

Here, too, EPA violates the CAA by allowing incinerators to choose to comply with less stringent percent-reduction standards for mercury, sulfur dioxide, and hydrogen chloride whenever it suits them. And NRC has noted that incinerators are indeed often choosing this percent-reduction standard instead of the statutorily required numerical emission limit.⁷⁰ EPA must do away with these alternate emission standards when revising the LMWC Standards.

4. EPA Must Not Use Unwarranted Statistical Alterations to Weaken the MACT Floors.

The plain language of the CAA requires EPA to set the MACT floor for existing units as “the average emissions limitation achieved by the best performing 12 percent of units in the category” and the MACT floor for new units as “the emissions control that is achieved in practice by the best controlled similar unit.”⁷¹ The natural reading of this language is for EPA to look at prior emission data – emissions “achieved in practice” – and set the MACT floor based on the actual emission data EPA has for the best-performing LMWC unit for the new unit floor, and the mean – or “average” – of that emission data of the 19 best performing units for the existing unit floor.⁷²

Instead of following this natural reading of the statute, EPA’s practice has been to apply a variability factor – the upper prediction limit (“UPL”) – as part of its MACT floor calculations, resulting in MACT floors that are higher than the relevant emissions data. As EPA has explained, the calculation of the UPL value uses an equation that considers not only “(1) the average of the best performing source or sources’ stack-test results (i.e., the mean),” but then adds to that a numerical value that represents “(2) the pattern the stack-test results create (i.e., the distribution); (3) the variability in the best performing source or sources’ stack-test results (i.e., the variance); and (4) the total number of stack tests conducted for the best performing source or sources (i.e., the sample size).”⁷³ Because this numerical value is always positive, the unavoidable result is that a floor based on the UPL equation will be higher (and more permissive of pollution) than a floor based solely on the “average” of the data. EPA explains that it uses this UPL methodology “[t]o compensate for the lack of adequate emissions data” since, for many pollutants, the only monitoring that EPA requires is one, three-run stack test conducted once a year.⁷⁴ But there are at least six main problems with EPA’s use of the UPL method.

First, EPA should have enough emission data from LMWCs that the UPL method is not needed to supplement a data shortage. LMWCs have been operating under EPA’s Section 129

⁶⁸ *Id.* at 15–16.

⁶⁹ *Id.* at 16.

⁷⁰ NRC Study, *supra* note 2 at 187 (attach. 2) (“Section 129 also requires the setting of numerical emission limits based on MACT. That has been done for all required pollutants except mercury, HCl, and SO₂, for which a dual standard – the less stringent of a numerical limit and a percentage reduction – is proposed. In practice, the percentage reduction usually applies.”).

⁷¹ 42 U.S.C. § 7429(a)(2).

⁷² 19 units are 12% of EPA’s inventory of 152 LMWC units.

⁷³ *United States Sugar Corp.*, 830 F.3d at 635.

⁷⁴ *Id.* at 598.

standards for nearly three decades. So even for pollutants monitored by an annual, 3-run stack test, each LMWC unit should have about 100 data points (3 runs/year x 30 years). And continuously monitored pollutants have orders of magnitude more data points. So this is not a situation where EPA is regulating a new source category for the first time and has just a few data points from which to adduce actual performance – here, instead, we have decades of incinerator emission data that show the full contours of incinerator performance.

Second, EPA claims that the UPL method results in a value that represents the statutorily required “average,”⁷⁵ but that reasoning does not comport with the plain text of the CAA or Congress’s intent. Section 129 requires the existing-unit MACT floor to be set at the “average emission limitation achieved by” the best performing 12% of units, while the new-unit MACT floor is set at the “emissions control that is achieved in practice” by the best performing unit.⁷⁶ Congress’s use of “average” for the existing-unit floor but not the new-unit floor indicates that Congress intended a different calculation method for the two floors, since the new-unit floor is based on data from only one unit so there would be no need to “average” the actual emissions data across multiple units for this floor. But EPA instead ignores this statutory distinction and applies the UPL methodology to both the existing-unit floor and new-unit floor and has read these two distinct statutory phrases – “average emission limitation achieved” and “emission control that is achieved in practice” – to both mean the same thing: allowance of the UPL method.⁷⁷ EPA contradicts principles of statutory construction by erasing differences in statutory language to instead interpret different language to mean the same thing.⁷⁸ Nor could EPA’s UPL methodology reasonably represent the “average” emissions of the top 12% when the UPL

⁷⁵ See Memorandum from Brian Storey, EPA regarding Use of Upper Prediction Limit for Calculating MACT Floors at 2 (July 2022), in Rulemaking Docket No. EPA-HQ-OAR-2017-0015, <https://www.regulations.gov/document/EPA-HQ-OAR-2017-0015-0138> [hereinafter 2022 EPA UPL Memo] (attached as Attachment 18) (“[EPA] uses the UPL to estimate the average emissions performance of the units used to establish the MACT floor standards at times other than when the stack tests were conducted. Thus, the UPL results in a limit that represents the average emissions limitation achieved by the best performing sources over time, accounting for variability in emissions performance.”); *United States Sugar Corp.*, 830 F.3d at 637 (“According to the EPA, ‘the UPL does not represent the worst emissions performance of the best performing units at any time.’ It is instead ‘the average level expected to have been achieved over time’ by the best performing source or sources. ‘In other words, the 99 percent UPL is the level of emissions that [the EPA is] 99 percent confident is achieved by the average source ... over a long-term period based on its previous, measured performance history as reflected in short term stack test data.’”) (cleaned up); *Nat’l Ass’n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1142 (D.C. Cir. 2013) (“EPA responded that ‘[b]ecause the [upper prediction limit] represents the value which we can expect the mean (*i.e.*, average) of three future observations (3–run average) to fall below, based upon the results of the independent sample size from the same population, the [upper prediction limit] reflects average emissions.’”).

⁷⁶ 42 U.S.C. § 7429(a)(2).

⁷⁷ See, e.g., 2022 EPA UPL Memo, *supra* note 75 at 5 (attach. 18) (“It is reasonable to interpret the statutory requirement that the MACT floor level reflect the ‘emission control that is achieved in practice’ by the best controlled similar source and the ‘average emission limitation achieved by’ the best performing 12 percent of sources as a level that the average level the best performers are meeting on a consistent basis over time, not just at the single point in time during which emissions test data were collected.”).

⁷⁸ *Sw. Airlines Co. v. Saxon*, 142 S. Ct. 1783, 1789 (2022) (quoting A. Scalia & B. Garner, *Reading Law* 170 (2012)) (“[W]here [a] document has used one term in one place, and a materially different term in another, the presumption is that the different term denotes a different idea”).

method can often produce absurd results like new-unit floors that are weaker than existing-unit floors.⁷⁹

Third, instead of monitoring actual emissions, EPA is using a tool designed to predict future emissions in order to predict the range of possible past emissions. As noted above, MACT floors must be based on performance that has been “achieved” in the past, and not what is theoretically “achievable” in the future – questions about future achievability arise only at the beyond-the-floor stage of the MACT analysis.⁸⁰ EPA initially explained that its UPL value predicted future performance only, but after the D.C. Circuit questioned why EPA was using predictions of the future to answer questions about the past,⁸¹ EPA revised its explanation to claim that the UPL predicts the results of “emissions tests conducted in the past, present, and future.”⁸² But EPA’s revised explanation still admits that the UPL “cannot demonstrate with absolute certainty the average emissions levels achieved by the best performing sources at all times (indeed, *certainty is impossible without continuous monitoring*).”⁸³ If EPA truly believes that data about performance throughout the year is necessary to properly calculate MACT floors, it should measure that performance continuously throughout the year, instead of guessing about annual performance based on just one stack test that measures emissions during a fraction of a percent of annual hours. As explained further in Section III below, EPA should require LMWCs to continuously monitor their emissions of *all* pollutants for a number of reasons, including so that the MACT floors could be accurately calculated.

Fourth, the variance in a unit’s emissions is largely due to controllable, non-random factors, but EPA’s UPL methodology assumes that facilities can do nothing to minimize that variance. As the National Association of Clean Air Agencies (“NACAA”) has explained, EPA’s UPL method assumes that “all of the difference in performance is a ‘variability’ in performance that is essentially random and therefore susceptible to statistical analysis,” but “[t]he degree to which emission tests results can vary are not truly random, but are constrained by the laws of physics and chemistry and, in many instances, the performance of pollution control devices.”⁸⁴ Indeed, stack-test results used in UPL calculations are not random snapshots of emissions but are tightly controlled and regulated tests in which incinerators are on their best behavior, and abnormal test results are often invalidated so that the tests are repeated again at a later date.⁸⁵ For

⁷⁹ See *Nat’l Ass’n of Clean Water Agencies*, 734 F.3d at 1141 (citing 76 Fed. Reg. at 15,388–89) (“EPA calculated a MACT floor for the best-controlled unit that was higher than the floor based on the average emissions limitations achieved by the top 12 percent of units.”); Memorandum from Brian Storey, USEPA regarding Approach for Applying the Upper Prediction Limit to Limited Datasets at 7 (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] (attached as Attachment 19) (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.”).

⁸⁰ See *Nat’l Ass’n of Clean Water Agencies*, 734 F.3d at 1150 (“[I]mplicit in the [CAA’s] requirement is that the standard for what is achievable will be more stringent than the floors that are based on past achievement.”)

⁸¹ See *id.* at 1142.

⁸² *United States Sugar Corp.*, 830 F.3d at 639 n.33.

⁸³ *Id.* at 635 (emphasis added).

⁸⁴ Comments from NACAA to EPA on Commercial Industrial Solid Waste Incineration at 9–10, 16 (Feb. 21, 2012), in Rulemaking Docket No. EPA-HQ-OAR-2003-0119, <https://www.regulations.gov/comment/EPA-HQ-OAR-2003-0119-2614> (attached as Attachment 20).

⁸⁵ See 40 C.F.R. §§ 60.33b, 60.58b (requiring that LMWC stack tests comply with procedures and requirements of multiple EPA Reference Methods).

continuous emission monitoring systems (“CEMS”), meanwhile, EPA requires extensive performance specifications and quality assurance/quality control measures to ensure that the CEMS are not spouting out random numbers, but are indeed accurately reflecting actual emissions.⁸⁶ And the amount of some LMWC emissions like heavy metals depends on the amount of these toxic substances in the waste put into the boilers – the toxic content of the waste feedstock is not random, and should be prevented by precombustion controls, as explained in Section VII below. So even though EPA’s justification to use the UPL method is that it accounts for “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,”⁸⁷ EPA’s explanation does not recognize that this variability is limited by EPA’s own requirements on sampling, analyses, and processes. If anything, EPA should require that LMWCs do all they can do to limit spikes in emissions, instead of creating perverse incentives for LMWCs to *want* sporadic emission spikes because that would bump up the UPL and result in more lenient MACT floors.

Fifth, EPA’s practice in calculating the UPL for the existing unit floor is to first rank units *without* considering their variance, but then “pool” the variance of the top 12% of units, thereby erasing any distinctions between better-performing units with less variance and worse-performing units with greater variance.⁸⁸ But as explained above, variance in emission data is not an Act of God, it is dependent on a variety of factors within the LMWC operator’s control, and thus plainly falls within the definition of a unit’s “performance” within the meaning of that term in the CAA. Worse still, EPA’s pooled-variance approach might inflate the UPL value in circumstances in which the single best-performing unit has emissions significantly lower than the rest of the top 12% when, if anything, the high performance of that unit should make the MACT floor more stringent, not weaken it. If EPA were to consider variance in its setting of the MACT floor – which, as explained above, it should not – then it must at least consider the variance of each unit as part of that unit’s “performance” and rank units only *after* EPA has calculated that unit’s individual UPL value. Indeed, EPA agrees that variance is part of “performance,” and recommends considering variance when ranking units that have similar 3-run averages⁸⁹ – but EPA must extend this principle to all situations, not just when there are similar 3-run averages. To do otherwise runs the risk that the units EPA uses to calculate the floor are not actually the “best-performing” units, but may include poorly-managed units with high variance that just happened to have a low stack-test result. The CAA does not allow such an outcome.⁹⁰

⁸⁶ See 40 C.F.R. Pt. 60, App. B; *id.* App. F.

⁸⁷ Memorandum from Toni Jones, USEPA 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> [hereinafter 2014 EPA UPL Memo] (attached as Attachment 21).

⁸⁸ See, e.g., National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Amendments, 88 Fed. Reg. 805, 812 (Jan. 5, 2023) (noting that EPA calculated a “pooled variability factor” in UPL calculation for proposed MACT floors).

⁸⁹ 2022 Limited Dataset Memo, *supra* note 79 at 7 (attach. 19) (“when multiple best performing units have emission averages that are similar, we may look to other variables like the variance to help to inform our decision as to which unit is the single best performer.”).

⁹⁰ See *Sierra Club*, 895 F.3d at 15 (remanding NESHAP to EPA because the Agency “did not explain how using data from the second best performing unit instead of the best performing unit comports with the CAA’s requirements that MACT floors be calculated based on the best performing unit or units.”).

Sixth, EPA’s practice has been to use a confidence interval as high as 99% for the UPL calculation,⁹¹ but its justification for such a high confidence interval is baseless. EPA has explained that the 99% confidence interval is used to represent “the level of emissions that [the EPA is] 99 percent confident is achieved by the average source,”⁹² but by definition the UPL value at the 99% confidence interval has only a 1% chance of actually representing the “average” value for the unit. EPA has also explained that the 99% confidence interval is “the emissions level that the source would be predicted to be below during 99 out of 100 performance tests,”⁹³ but again, this assumes that a source’s variability is random, but, as noted above, variability depends on controllable factors. The choice of the 99% confidence interval appears arbitrary – EPA could just as well have chosen a 90%, 75%, even 50% confidence interval, and indeed, in EPA’s recent Mercury and Air Toxics Standards (“MATS”) proposed rule, EPA analyzed emissions at the 99th, 90th, 85th, 80th, 75th, and 50th percentiles, suggesting that there is nothing special about the choice of 99%.⁹⁴ Or rather, it appears the only thing special about the 99% confidence interval is that it results in the highest UPL value possible without the use of a 100% confidence interval, which would result in a MACT floor of infinity (effectively, no limit at all). And again, if EPA really needed “100 performance tests” in order to set the MACT floors, then it should require facilities to conduct at least 100 performance tests a year, or to continuously monitor all emissions. Instead of choosing a number as high as possible, EPA should at the very least choose a defensible confidence interval that is based on the expected variability given control technology and practices. In its memo for using the UPL on limited data sets, EPA recommended this approach, while implicitly acknowledging that a source’s variability is dependent on controllable factors. There, EPA recommends that for units “with a specific process or control device that has been demonstrated to operate far more efficiently (thus having the potential to lower emissions) in similar units, processes, or control devices. . . . [EPA] may choose to acknowledge the better operation by lowering the confidence level.”⁹⁵ The reasoning in EPA’s memo applies just as equally for larger datasets as it does for limited datasets, and a lower confidence interval is warranted for all datasets.

In short, EPA’s UPL method is irrational and inconsistent with the CAA. EPA should not apply the UPL to its recalculation of the LMWC MACT floors, especially because the UPL method is not necessary because of the decades of LMWC emissions data.

⁹¹ See Memorandum from Toni Jones, USEPA regarding Approach for Applying the Upper Prediction Limit to Limited Datasets at 4 (Dec. 12, 2014), in Rulemaking Docket EPA-HQ-OAR-2003-0119, <https://www.regulations.gov/document/EPA-HQ-OAR-2003-0119-2710> [hereinafter 2014 Limited Dataset Memo] (attached as Attachment 22).

⁹² *United States Sugar Corp.*, 830 F.3d at 637; see also *id.* at 638 n.32 (noting the parties did not challenge “EPA’s choice of a 99 per cent confidence level, as opposed to a lower level of certainty” so the court “express[ed] no opinion on that choice.”).

⁹³ 2014 EPA UPL Memo, *supra* note 87 at 4 (attach. 21).

⁹⁴ EPA, Memorandum regarding 2023 Technology Review for the Coal- and Oil-Fired EGU Source Category at 3 and App. B (Jan. 2023), https://www.epa.gov/system/files/documents/2023-04/MATS_RTR_Proposal_TechnologyReviewMemo_0.pdf (attached as Attachment 23).

⁹⁵ 2014 Limited Dataset Memo, *supra* note 91 at 7–8 (attach. 22).

B. EPA Should Set Emission Limits Beyond the Recalculated Floors to Protect Communities to the Maximum Achievable Extent.

1. EPA Must Not Use Arbitrary MACT Cost-Effectiveness Thresholds.

Section 129 instructs that EPA must set MACT emission limits 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.”⁹⁶ EPA therefore must set beyond-the-floor emission limits such that they result in the “maximum . . . achievable” “reduction in emissions,” taking into account multiple factors.⁹⁷

But historically, EPA has limited the focus of its beyond-the-floor analysis to just one of these many factors: “cost.” While EPA has used different metrics to consider costs in different rulemakings,⁹⁸ in the prior LMWC rulemakings, EPA mainly considered “cost-effectiveness.” In the 1995 LMWC Standards, for example, EPA’s rationale for deciding whether to apply limits beyond the MACT Floor was whether the new limits were cost-effective on the basis of either cost per mass of waste burned,⁹⁹ or cost per mass of emissions reduced.¹⁰⁰ Similarly, in the 2006 LMWC Standards, EPA declined to require incinerators with ESPs to upgrade to baghouses primarily because “EPA concluded that the [PM_{2.5}] cost-reduction ratio for ESP replacement was excessive.”¹⁰¹

But 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.¹⁰² 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 [might] not [be] the better reading.”¹⁰³ For the LMWC revision, EPA should eschew a beyond-the-floor analysis based solely on “cost-effectiveness,”

⁹⁶ 42 U.S.C. § 7429(a)(2).

⁹⁷ *Id.*

⁹⁸ See e.g., 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. at 24,870 (Apr. 24, 2023).

⁹⁹ Standards of Performance for New Stationary Sources: Municipal Waste Combustors, 59 Fed. Reg. at 48,216 (Sept. 20, 1994).

¹⁰⁰ 1995 LMWC Standards, 60 Fed. Reg. at 65,406.

¹⁰¹ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,355. As explained in Section II.A.2 above, had EPA set properly set MACT floors in compliance with the CAA, it is likely that the MACT floors would already have required emission limits at the levels achieved by incinerators with baghouses.

¹⁰² While the Unfunded Mandates Reform Act does include a provision that agencies generally are to select “the least costly, *most cost-effective* or least burdensome alternative” for rules with mandates on the private sector or State, local, or tribal governments, that provision does not apply when it is “inconsistent with law,” or when the agency otherwise explains in the rulemaking its decision to select a different option. 2 U.S.C. § 1535(a), (b) (emphasis added). Thus, consideration of “cost-effectiveness” under the Unfunded Mandates Reform Act cannot control EPA’s setting of beyond-the-floor standards because that cost-effectiveness criteria is “inconsistent” with the CAA’s requirement that LMWC Standards reflect maximum achievability.

¹⁰³ *Nat. Res. Def. Council v. EPA*, 749 F.3d 1055, 1061 (D.C. Cir. 2014).

and instead follow the “better reading” of the CAA to consider “maximum . . . achievable” emissions reductions.

Moreover, EPA’s application of the cost-effectiveness standard has been arbitrary. In communications with the Office of Management and Budget (“OMB”) about a recent NESHAP rulemaking, for example, EPA admits that EPA “does not have a clearly defined threshold for what is cost-effective,” nor does the Agency “compare any cost-effectiveness value with any monetized benefit to determine if an option is cost-effective or not.”¹⁰⁴ Indeed, in the 1995 LMWC rulemaking, EPA found a ratio of \$350,000/ton of mercury removed to be cost-effective,¹⁰⁵ but in the 2006 LMWC rulemaking, EPA now considered a ratio of just \$112,000/ton of pollution removed to be “excessive.”¹⁰⁶ In the Lime Kiln NESHAP that EPA proposed earlier this year, EPA found \$16,969/pound (or \$34,000,000/ton) of mercury removed to be cost-effective, but \$4,300/ton of HCl removed was unreasonable.¹⁰⁷ None of these rulemakings explained why a higher cost/ton number is acceptable in some situations and a lower cost/ton number is unacceptable in others. EPA’s determinations seem to be based not on principled guidelines, but instead on gut feelings that can change from year to year.

EPA’s approach when setting MACT standards has been arbitrary in additional ways. For example, in the 2006 LMWC Standards, EPA declined to go beyond the floor and require baghouses because “EPA has recently completed other rulemakings that have achieved considerable reductions of fine particulate matter (PM2.5)” so, according to EPA, there was no need to further reduce incinerators’ emissions of that pollutant.¹⁰⁸ But EPA’s explanation in the 2006 LMWC Standards includes no quantification of the emission reductions from these unspecified “other rulemakings,” no assessment of whether additional PM2.5 emission reductions would lead to additional health benefits, and no consideration of whether these other PM2.5 reductions are even located near communities affected by incinerator emissions – not to mention a lack of consideration for other types of pollutants aside from PM2.5 that would also be reduced by installing baghouses. Nor should EPA double or triple-count technology costs by considering costs one pollutant at a time, as if the LMWCs would have to buy the technology repeatedly to control different pollutants. EPA should instead apportion the costs of multi-pollutant control technologies like activated carbon injection or baghouses across all the controlled pollutants. And EPA must not decline to set limits beyond the MACT floor merely on a vague assertion that the people affected by incinerators are well off enough as it is, when studies show that is not the case.¹⁰⁹

The impacts that incinerators have on over-burdened and environmental justice communities, in particular, warrant EPA setting LMWC emission limits at the “maximum . . . achievable” level. As noted in Section I above, LMWCs are predominantly located in

¹⁰⁴ See EPA, Gas Distribution Pass-Back for OMB attach. 3 at 56 (comment EPA50R49), *in* Rulemaking Docket No. EPA-HQ-OAR-2020-0371, <https://www.regulations.gov/document/EPA-HQ-OAR-2020-0371-0073> (attached as Attachment 24); *id.* at 64 (comment EPA52R51); *id.* at 95 (comment EPA68R67).

¹⁰⁵ 1995 LMWC Standards, 60 Fed. Reg. at 65,406.

¹⁰⁶ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,355 (“\$14.5 million” cost to reduce “130 tons” of emissions).

¹⁰⁷ National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Amendments, 88 Fed. Reg. at 811-12.

¹⁰⁸ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,355.

¹⁰⁹ See *supra* Section I.

environmental justice communities, and these facilities are often some of the greatest contributors to the pollution burden these communities face. Stronger controls on LMWC emissions would serve the core objectives of the CAA to “to promote the public health and welfare”¹¹⁰ by reducing exposure to toxic emissions – and would better safeguard the public health of communities already facing serious pollution burdens. Environmental justice principles as embodied in presidential Executive Orders 12898, 14008, and 14096 also support EPA’s use of its authority under the CAA to address fence-line-community impacts to the greatest extent possible.¹¹¹ And recent EPA guidance recognizes that it is appropriate to consider, as part of the 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.”¹¹²

So to promote this administration’s stated commitment to environmental justice, EPA should set beyond-the-floor levels that truly require “maximum . . . achievable” emission reductions. Or at the very least, EPA should increase its cost-effectiveness thresholds given the serious impacts that LMWCs have on environmental justice communities. In a recent proposed NESHAP, for example, EPA noted that it could adopt more protective standards that, even if “less cost effective . . . than [EPA] would typically find acceptable, are nevertheless appropriate given the reductions in [pollutants] that would occur in potentially over-burdened communities surrounding these sources.”¹¹³ EPA should apply that consideration to this rulemaking too, given that some 79% of LMWC facilities are located in environmental justice areas.¹¹⁴

After EPA sets emission limits to the lowest achievable levels under a forthcoming revision to the LMWC Standards, EPA should immediately follow up with a second rulemaking under the “residual risk” provisions of Section 129 so that the MACT emission limits can be further strengthened to “provide an ample margin of safety to protect public health,” as required by the CAA.¹¹⁵

2. EPA Should Set Beyond-the-Floor Standards for NOx.

To the extent that EPA’s recalculated MACT Floors do not already so require, EPA should go beyond the floor and establish a 24-hour NOx limit no higher than 50 ppm and 30-day NOx limit no higher than 45 ppm based on selective catalytic reduction (“SCR”) technology for *both* new and existing incinerators. SCR is a widely available technology that, as EPA has recognized, already is in use in 66% of the coal fleet, and has been considered Best Available

¹¹⁰ 42 U.S.C. § 7401(b)(1).

¹¹¹ Revitalizing Our Nation’s Commitment to Environmental Justice for All, Exec. Order No. 14096, 88 Fed. Reg. 25,251 (Apr. 21, 2023); Tackling the Climate Crisis at Home and Abroad, Exec. Order No. 14008, 86 Fed. Reg. 7,619 (Jan. 27, 2021); Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, Exec. Order No. 12898, 59 Fed. Reg. 7,629 (Feb. 11, 1994).

¹¹² 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> (attached as Attachment 25).

¹¹³ National Emission Standards for Hazardous Air Pollutants: Gasoline Distribution Technology Review and Standards of Performance for Bulk Gasoline Terminals Review, 87 Fed. Reg. at 35,640 (June 10, 2022).

¹¹⁴ See *supra* Section I. In addition, EPA should not source its control-technology cost estimates from LMWC owners and operators, who have incentives to inflate cost estimates to avoid further emission-reduction requirements. Instead, EPA should directly ask control-technology vendors, or trade groups that represent them like the Institute of Clean Air Companies, to obtain accurate figures of actual control and monitoring technology costs.

¹¹⁵ 42 U.S.C. §§ 7412(f), 7429(h)(3).

Control Technology (“BACT”) for decades.¹¹⁶ EPA has also recognized that PBREF II uses SCR and has “achieved emissions rates of 50 ppmvd on a 24-hr averaging basis and 45 ppmvd on a 30-day rolling averaging basis.”¹¹⁷ During the permitting process for this Palm Beach facility, Florida considered both SCR and the 50ppm emission limit to be BACT.¹¹⁸ Thus, EPA should require NOx limits no higher than 50ppm (24-hour) and 45 ppm (30-day) since EPA recognizes that LMWCs have already “achieved” these limits, and so the required “maximum . . . achievable” limit would be no higher than these levels.

And while EPA should avoid basing its beyond-the-floor analysis solely on cost-effectiveness thresholds, even if EPA did so here, SCR-based limits would still meet that test. Third-party studies of incinerators that currently do not have SCR show SCR installation and use costs of \$10,296 to \$12,779/ton of NOx reduced (Wheelabrator/WIN Baltimore), \$15,898/ton (Covanta Fairfax), and \$31,445/ton (Covanta Alexandria/Arlington).¹¹⁹ These ratios are well below the South Coast Air Quality Management District’s \$325,000/ton NOx cost-effectiveness threshold.¹²⁰ They are also well below EPA’s estimate of 2025 ozone-related health benefits from NOx reduction, which range from \$37,100 to \$102,000/ton, depending on the sector and discount rate – and those figures do not even include the up to \$32,400/ton of *additional* PM2.5-related benefits from NOx reduction.¹²¹ The incinerator SCR cost/ton figures are also in line with NOx control measures EPA required in the Good Neighbor Rule earlier this year, which had sector- and state- specific ratios as high as \$24,690/ton.¹²² So the health benefits/ton to communities of the 50 ppm (24-hour) and 45 ppm (30-day) NOx limits far outweigh the costs/ton to industry, and at any rate, these costs/ton are comparable to those EPA has required for NOx reductions in other rulemakings.

Indeed, South Coast Air Quality Management District’s analysis shows that there remains much untapped, cost-effective potential for NOx emission reductions by installing SCR at incinerators. In its analysis of 26 possible NOx reduction measures across different industries, the agency ranked a proposal to install SCR and ultra-low NOx burners at incinerators as the

¹¹⁶ Good Neighbor Rule, 88 Fed. Reg. at 36,726.

¹¹⁷ *Id.* at 635.

¹¹⁸ Ozone Transport Commission, *Municipal Waste Combustor Workgroup Report* at 60-61 (Apr. 2022) [hereinafter OTC MWC Report] (attached as Attachment 26).

¹¹⁹ OTC MWC Report, *supra* note 118 at 60-61 (attach. 26); *see also* Good Neighbor Rule, 88 Fed. Reg. at 36,837.

¹²⁰ SCAQMD, *2022 Air Quality Management Plan* at 4-81 to 4-83 (Dec. 2, 2022)

<https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf> [hereinafter SCAQMD 2022 Plan] (attached as Attachment 27). SCAQMD must calculate and rank proposed emission control measures by cost-effectiveness, but – unlike EPA’s practice – SCAQMD uses cost-effectiveness thresholds as “screening levels [that] are not intended to serve as a hard cap on cost-effectiveness for a given regulatory option.” *Id.* at 4-75.

¹²¹ EPA, Technical Support Document, Estimating the Benefit per Ton of Reducing Directly-Emitted PM2.5, PM2.5 Precursors and Ozone Precursors from 21 Sectors at 22-23 (Apr. 2023), https://www.epa.gov/system/files/documents/2021-10/source-apportionment-tsd-oct-2021_0.pdf (attached as Attachment 28).

¹²² EPA, Technical Memorandum, Non-EGU Applicability Requirements and Estimate Emissions Reductions and Costs at 12-14 (Mar. 15, 2023) in Rulemaking Docket No. EPA-HQ-OAR-2021-0668, https://www.epa.gov/system/files/documents/2023-03/Memo%20to%20Docket_Non-EGU%20Applicability%20Requirements%20and%20Estimate%20Emissions%20Reductions%20and%20Costs_Final.pdf (attached as Attachment 29).

most cost-effective.¹²³ These upgrades would result in some 330 fewer tons of NO_x emissions per year at a cost of just \$900 to \$1,500/ton.¹²⁴

The incinerator industry's own documents show the need for LMWCs to go beyond current emission controls to reduce NO_x emissions. Covanta's performance charts show that its LMWCs that use selective non-catalytic reduction ("SNCR") have average emissions just 33% below the current LMWC limits,¹²⁵ while these same facilities have achieved emissions that average 73-98% below the LMWC limits for the other regulated pollutants.¹²⁶ Indeed, LMWCs emit some 6.75 times more NO_x per MWh than coal plants,¹²⁷ and in states like New Jersey, LMWCs are some of the biggest emitters of NO_x, period.¹²⁸ Some 23 LMWC facilities (representing 64 units) are located in ozone nonattainment areas, with 11 facilities (28 units) in areas designated "serious" or "severe" nonattainment.¹²⁹ The SNCR status quo is not resulting in necessary emission reductions of smog- and PM-forming NO_x, so EPA should go beyond the floor to set limits based on widely available SCR technology.

EPA must therefore set a 24-hour 50 ppm NO_x limit based on SCR. But if it does not, EPA should at the very least expand the recent Good Neighbor Rule's 24-hour 110 ppm and 30-day 105 ppm limits to apply to all LMWCs and apply year-round. In the Good Neighbor Rule, EPA applied these emission limits to LMWCs, citing a finding of the Ozone Transport commission ("OTC") that "significant annual NO_x reductions could be achieved from MWCs in the [ozone transport region] using several different technologies, or combination of technologies at a reasonable cost."¹³⁰ But these emission limits have two important caveats. *First*, they apply to only those incinerators in states whose emissions EPA found contribute to downwind states' ozone. That means that the new emission limits apply to only 28 facilities (representing 80 units) in 9 states,¹³¹ so it does not cover the remaining 47% of LMWC units in 9 other states at all.¹³² *Second*, even in states where the limits do apply, they apply only during the ozone season from

¹²³ SCAQMD 2022 Plan, *supra* note 120 at 6-17 (attach. 27); SCAQMD, *Appendix IV-A: South Coast AQMD's Stationary and Mobile Source Control Measures* at IV-A-124 (Dec. 2, 2022), <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iv-a.pdf> (attached as Attachment 30).

¹²⁴ *Id.*

¹²⁵ See Covanta Facility Performance Reports, *supra* note 30 (attach. 11). Data for the Delaware Valley, SEMASS, and York facilities were removed from the average because at least some of their units do not have SNCR. Data from the Palm Beach facility was also removed because it is unclear whether it includes data from that facility's units that do have SCR.

¹²⁶ See Table 1, *supra* Section II.A.1.

¹²⁷ Comments of the New York State Department of Environmental Conservation regarding the Verified Petition of Covanta Energy Corporation at 25 (Aug. 19, 2011), <https://waterfrontonline.files.wordpress.com/2017/12/deccommentsoncovantaugust2011.pdf> (attached as Attachment 31).

¹²⁸ NJ Dirty Secret Report, *supra* note 54 at 5 (attach. 15).

¹²⁹ Calculations based on inventory of 70 facilities representing 183 units and data from EPA, Nonattainment Areas for Criteria Pollutants (Green Book), <https://www.epa.gov/green-book> [<https://perma.cc/9KYE-BVTV>].

¹³⁰ Good Neighbor Rule, 88 Fed. Reg. at 36,734.

¹³¹ *Id.* at 632; EPA, Final Non-EGU Sectors Technical Support Document at 87-91 (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> (attached as Attachment 32).

¹³² In a March 21, 2023 webinar, EPA noted that its current LMWC inventory consisted of 152 units at 57 facilities in 18 states.

May to September.¹³³ So all told, the Good Neighbor Rule, by itself, increases protections on only half of incinerator-adjacent communities for less than half of the year.

The findings that EPA made in the Good Neighbor Rule to require lower limits for some LMWCs some of the time apply equally well to require lower limits for all LMWCs all of the time, and so compel EPA to go beyond the MACT floor at least to these levels. The Good Neighbor Rule found that these emission limits “can be achieved at a reasonable cost” of about \$7,836/ton of NO_x removed.¹³⁴ Indeed, EPA noted that “no commenters specifically indicated that emissions control technology could not be cost effectively installed on large MWCs to achieve an emissions limit of 105 ppmvd [30-day] and 110 ppmvd [24-hour].”¹³⁵ And EPA’s cost-effectiveness figure likely overestimates costs because, as EPA admits, it includes control technology installation/capital costs for facilities that already have the technology installed.¹³⁶

And since the LMWCs not currently covered by the Good Neighbor Rule use the same combustion processes as those that *are* covered by that rule,¹³⁷ any analysis of expanding the Good Neighbor Rule NO_x limits to all LMWCs should find similar cost-effectiveness values that are, in EPA’s own words, “reasonable.”

States are also increasingly recognizing that a 24-hour NO_x limit of 110 ppmv is technically and economically feasible for LMWCs and, therefore, constitutes Reasonably Available Control Technology (“RACT”) for LMWCs under Sections 182 and 184 of the Clean Air Act. Virginia’s State Implementation Plan has imposed a 110 ppmvd daily NO_x limit as RACT on its two Covanta-operated LMWCs since 2019.¹³⁸ In June 2022, the OTC approved a Memorandum of Understanding (“MOU”) in which eleven member jurisdictions agreed to work together to achieve greater NO_x reductions from MWCs,¹³⁹ referencing an OTC workgroup white paper that found that limits of 110 ppmvd on a 24-hour basis and 105 ppmvd on a 30-day basis are “likely achievable for most [LMWCs] in the [Ozone Transport Region].”¹⁴⁰ In November 2022, Pennsylvania also finalized a presumptive NO_x RACT limit of 110 ppmv on a 24-hour basis for LMWCs.¹⁴¹ Covanta has already submitted an application to meet this

¹³³ Good Neighbor Rule, 88 Fed. Reg. at 36,664.

¹³⁴ *Id.* at 280 & Table V.C.2-3.

¹³⁵ *Id.* at 637.

¹³⁶ EPA, Final Non-EGU Sectors Technical Support Document, *supra* note 131 at 95 (attach. 32).

¹³⁷ Compare *id.* at Table 7.A (listing LMWCs covered by Good Neighbor Rule as having “combustor types” of either “MB/WW” (mass burn/waterwall), “MB/RC” (mass burn/rotary combustor), “RDF” (refuse-derived fuel), and “CLEERGAS gasification”) with 2002 National Inventory of Large MWCs, *supra* note 15 at 4-7 (attach. 9) (EPA inventory of 167 LMWC units in existence in 2000, listing only “MB/WW,” “MB/RC,” and “RDF” among “unit type”).

¹³⁸ See Approval and Promulgation of Air Quality Implementation Plans; Virginia; Source-Specific Reasonably Available Control Technology Determinations for 2008 Ozone National Ambient Air Quality Standard, 84 Fed. Reg. 67196, 67197 (Dec. 9, 2019).

¹³⁹ Memorandum of Understanding Among the States of the Ozone Transport Commission to Pursue Additional Reductions of Oxides of Nitrogen Emissions from Municipal Waste Combustors (June 2, 2022), https://otcair.org/upload/Documents/Formal%20Actions/MOU22-01%20OTC_MWC_MOU_20220602%20final%20signed.pdf (attached as Attachment 33).

¹⁴⁰ OTC MWC Report, *supra* note 118 at 23 (attach. 26).

¹⁴¹ Additional RACT Requirements for Major Sources of NO_x and VOCs for the 2015 Ozone NAAQS, 52 Pa. Bull. 6960 (Nov. 12, 2022), codified at 25 PA. CODE § 129.112(f) (2022), <https://pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol52/52-46/1735.html&search=1&searchunitkeywords=ract> [<https://perma.cc/TL7G-NWNT>].

presumptive limit by installing SNCR at its LMWC facility in Chester, Pennsylvania, which operates rotary combustors¹⁴² – demonstrating that multiple boiler types can meet this limit. And the incinerator operated in Baltimore, Maryland by WIN Waste Innovations, formerly Wheelabrator Technologies, will soon also have a 105 ppm 30-day rolling average NO_x limit.¹⁴³

3. EPA Should Set Beyond-the-Floor Standards for Lead and Cadmium.

EPA's current standards allow existing LMWCs to emit an astoundingly high 400 µg/dscm of lead.¹⁴⁴ This limit is over 26 times higher than what EPA allows existing commercial and industrial solid waste incinerators to emit,¹⁴⁵ and, as noted in Section II.A.1 above, it is some 100 times higher than actual LMWC emissions. And this 400 µg/dscm limit was arbitrarily set – EPA in 2005 proposed to revise the limit to 250 µg/dscm,¹⁴⁶ but in its 2006 final rule, EPA bumped that limit up to 400 µg/dscm after “discount[ing]” data in the statistical analysis used in the Proposed Rule.¹⁴⁷ As Sierra Club explained in its petition to EPA to reconsider this aspect of the final rule, it appears that EPA simply picked a number that the Agency thought was appropriate, instead of following the MACT procedure required by the CAA.¹⁴⁸ To date, EPA has not attempted to resolve this issue raised in the Sierra Club petition. As for cadmium, LMWCs are allowed to emit up to 35 µg/dscm of this toxic pollutant.¹⁴⁹

To the extent the recalculated MACT Floors do not already so require, EPA should go beyond the floor to require significant reductions in LMWC lead and cadmium emissions. Lead and cadmium are toxic heavy metals that cause various cancers and increase the risk of autoimmune diseases even in small quantities.¹⁵⁰ They damage the immune system, disrupt respiratory, neurological, digestive, cardiovascular, and urinary systems, and cause the overproduction and buildup of an unstable molecule that interferes with cell structures and even DNA.¹⁵¹ Lead in particular has been linked to behavioral and learning disorders in children, Alzheimer's, and auditory impairments, while cadmium exposure during the neonatal phase of development affects development and damages various organs like the liver, lungs and kidneys.¹⁵² Cadmium exposure, meanwhile, can cause damage to the lungs, liver, and kidneys and can result in liver, prostate, breast, lung, kidney, skin, and pancreatic cancer.¹⁵³

¹⁴² Covanta, Application for Plan Approval for NO_x Control Project Selective Non-Catalytic Reduction Air Pollution Control Device (Dec. 2022) (attached as Attachment 34).

¹⁴³ See Air Pollution Emission Control and Monitoring Agreement between Mayor and City Council of Baltimore and Wheelabrator Baltimore at 6 (Nov. 4, 2020) (attached as Attachment 35).

¹⁴⁴ 40 C.F.R. § 60.33b(a)(4).

¹⁴⁵ *Id.* Pt. 60, Subpt. DDDD, Tbl. 6 (allowing only 15 µg/dscm of lead emissions).

¹⁴⁶ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,350.

¹⁴⁷ 2006 LMWC Standards, 71 Fed. Reg. at 27,325, 28.

¹⁴⁸ Earthjustice Petition to EPA regarding 2006 LMWC Standards at 6-7 (July 7, 2006) (attached as Attachment 36).

¹⁴⁹ 40 C.F.R. § 60.33b(a)(2).

¹⁵⁰ Maryam Ebrahimi et al., *Effects of lead and cadmium on the immune system and cancer progression*, 18(1) J. of Env'tl. Health Sci. & Eng'g 335-43 (2020) (attached as Attachment 37).

¹⁵¹ *Id.*

¹⁵² *Id.* at 335-36. (“Lead accumulation in various organs induces adverse effects that may lead to anemia, nervous system disorders, kidney and liver damage, auditory impairment, gastrointestinal damage, decreased IQ and behavioral and learning disorders in children, Alzheimer's disease, cancer and progression of cancers such as breast cancer. Similarly, cadmium can damage various organs such as the lungs, liver, and kidneys and can cause liver, prostate, breast, lung, kidney, skin, and pancreatic cancer.”).

¹⁵³ *Id.* at 336.

EPA is compelled to go beyond the floor by its recent Strategy to Reduce Lead Exposures and Disparities in U.S. Communities (“Lead Strategy”), in which EPA commits to “significantly reducing lead exposure for all people and eliminating inequities in elevated blood lead levels across population groups and life stages.”¹⁵⁴ EPA’s actions to achieve these goals include, in part, to “update emissions standards for lead-emitting sources” such as “municipal waste combustors” so that they “incorporate developments in technologies and/or address risk concerns.”¹⁵⁵ As noted above, 79% of LMWC facilities are located in environmental justice communities, and ten of the top 12 highest lead-emitting LMWC facilities are in environmental justice communities.¹⁵⁶ In order to follow through with the Lead Strategy’s commitment to eliminate inequities in lead exposures and reduce lead exposures overall, EPA must do more than the bare minimum, and must go beyond recalculated MACT floors to require the maximum achievable lead emission reductions.

Examples show that the “maximum . . . achievable” level of lead and cadmium emissions are much lower than the levels in the current LMWC Standards. As stated above, the PBREF II facility is subject to permit limits of 125 µg/dscm for lead and 10 µg/dscm for cadmium,¹⁵⁷ and its actual performance is likely quite lower than this. Thus, existing incinerators already show that lead and cadmium emissions that are only a fraction of the EPA’s current LMWC Standards are achievable, and so EPA should lower the limits to these maximum achievable levels.

4. EPA Should Set Beyond-the-Floor Limits for Mercury and Dioxins.

EPA should also go beyond the floor to require increased emission reductions of mercury and dioxins/furans. Mercury causes a range of adverse health effects including neurological damage and kidney damage, and is especially dangerous for young children and pregnant women, since it can affect the developing brain and nervous system. Dioxins are highly toxic, persistent organic pollutants that are known to cause cancer, disrupt hormones, damage the immune system, and result in harmful reproductive and developmental complications.¹⁵⁸ The NRC notes that “[d]ioxins, furans, and mercury are examples of persistent pollutants for which incinerators have contributed a substantial portion of the total national emissions. Whereas one incinerator might contribute only a small fraction of the total environmental concentrations of these chemicals, the sum of the emissions of all the incineration facilities in a region can be considerable.”¹⁵⁹ The NRC continued to warn that “[s]ubstantial concerns about regional dioxin and furan exposures and moderate concerns about regional exposures to metals are not expected to be relieved by [EPA’s] MACT regulations, because the regulations may not adequately reduce risks attributable to cumulative emissions on a regional basis.”¹⁶⁰

Indeed, NRC was correct to note that the mercury and dioxin/furan limits in EPA’s LMWC Standards are insufficient, and do not even purport to be the “maximum . . . achievable” emission limits. In the 2006 LMWC Standards, EPA set a mercury emission limit of 50 µg/dscm

¹⁵⁴ EPA, *EPA Strategy to Reduce Lead Exposures and Disparities in U.S. Communities* at 6 (Oct. 2022), https://www.epa.gov/system/files/documents/2022-11/Lead%20Strategy_1.pdf (attached as Attachment 38).

¹⁵⁵ *Id.* at 37.

¹⁵⁶ Tishman Center Report, *supra* note 2 at 72-73 (attach. 7).

¹⁵⁷ PBREF II Permit, *supra* note 35 at 25 (attach. 12).

¹⁵⁸ *Learn About Dioxins*, EPA, <https://www.epa.gov/dioxin/learn-about-dioxin> [<https://perma.cc/YBA4-6ZQA>] (last updated on June 1, 2023).

¹⁵⁹ NRC Study, *supra* note 2 at 169 (attach. 2).

¹⁶⁰ *Id.* at 8.

despite evidence that “levels less than 30 µg/dscm are being achieved.”¹⁶¹ EPA’s supposed basis for bumping up the limit above these achievable levels was “the potential use of mercury CEMS and the higher mercury variability that may be observed with CEMS use.”¹⁶² But it is arbitrary for EPA to use CEMS as an excuse to increase emission limits, and especially so since, as explained in Section III below, few if any LMWCs have accepted EPA’s invitation to use optional mercury CEMS. And as noted in Section II.A.2 above, EPA’s current LMWC Standards impermissibly allow LMWCs with worse pollution controls to emit more dioxins/furans than those with better controls.

EPA’s insufficient LMWC Standards for mercury and dioxins/furans have resulted in a failure by many LMWCs to take industry-standard steps to reduce these emissions. EPA based the 1995 and 2006 LMWC limits on the assumption LMWCs would use activated carbon injection control technology.¹⁶³ But EPA’s 2000 data shows that 15 LMWC facilities still operated without activated carbon injection,¹⁶⁴ and a number of units, including those at the country’s largest incinerator in Chester, Pennsylvania, still appear to be without this important control technology over 20 years later.¹⁶⁵ Thus, EPA’s current, weak mercury and dioxin emission limits are not doing enough to ensure that all LMWCs use industry-standard technology to control these pollutants.

State permits suggest that LMWCs can achieve limits that are at least as stringent as 15 µg/dscm for mercury¹⁶⁶ and 2 ng/m³ for dioxins/furans.¹⁶⁷ And as EPA recently recognized, mercury control technologies have become “more widely used, more effective, and cheaper” in the past decade,¹⁶⁸ let alone since EPA last revised the LMWC mercury limits in 2006. According to EPA, because of a “‘robust industry of technology suppliers that drive innovation through internal research and development,’ the costs of compliance for end users has decreased over time.”¹⁶⁹ EPA should thus go beyond the floor and set the most protective mercury and dioxin/furan levels.

5. EPA Should Set Beyond-The-Floor Limits for PM and SO₂.

To the extent the revised MACT Floors do not already so require, EPA should go beyond the floor and set PM and SO₂ emission limits to maximum achievable levels. PM is hazardous to human health, with PM_{2.5} being the most dangerous because it can bypass the body’s natural defenses in the nose and throat and enter the lungs. Short-term exposure to PM_{2.5} can aggravate lung disease, cause asthma attacks and acute bronchitis, and increase

¹⁶¹ 2006 LMWC Standards, 71 Fed. Reg. at 27,328.

¹⁶² *Id.* at 27,328.

¹⁶³ 1995 LMWC Standards, 60 Fed. Reg. at 65,396; 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,351.

¹⁶⁴ 2002 National Inventory of Large MWCs, *supra* note 15 at 4–7 (attach. 9).

¹⁶⁵ *See, e.g.*, Title V Air Permit for Covanta Delaware Valley, PA DEP, Permit No. 23-00004 (Mar. 10, 2023) (attached as Attachment 39).

¹⁶⁶ Permit to Construct for Installation of Pollution Controls at Wheelabrator/WIN Baltimore, MD DEP, Permit Nos. 510-1886-2-0255, 510-1886-2-0256, 510-1886-2-0257 at 9 (Oct. 19, 2021) [hereinafter WIN Baltimore Permit] (attached as Attachment 40).

¹⁶⁷ Title V Operating Permit for Covanta Fairfax, VA DEQ, Permit No. NRO71920 at 12 (June 10, 2016) (attached as Attachment 41); *see also* PBREF II Permit, *supra* note 35 at 25 (attach. 12) (applying a 4.2 ng/dscm limit for dioxins/furans).

¹⁶⁸ 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. at 24,867.

¹⁶⁹ *Id.*

susceptibility to respiratory infections. Long-term exposures, such as those experienced by people living for many years in areas with high particulate matter levels, are associated with problems such as reduced lung function and the development of chronic bronchitis, and even premature death. Recent studies have even linked long term PM_{2.5} exposure to neurodegeneration and mental health problems such as depression and anxiety.¹⁷⁰ Exposure to sulfur dioxide, meanwhile, is linked to an array of adverse respiratory effects, such as increased asthma symptoms and increased respiratory illnesses.¹⁷¹

The PBREF II permit indicates that LMWCs are already achieving PM emission levels lower than 12 mg/dscm,¹⁷² so EPA should revise its PM emission limits to be at least this stringent. And PM control technology has only improved since the PBREF II facility was first permitted. EPA's recent MATS rule notes that "the industry has identified low-cost methods to achieve lower PM emissions than the current standard . . . since promulgation of MATS in 2012, including improvements to monitoring and control technologies" and that studies show "significant improvements in PM emission rates since 2011 [due] to wider deployment today of technologies that may have existed but not widely used in 2011, improved practices due to more regular and robust monitoring, and improvements to monitoring and ESP/FF technology."¹⁷³ So the maximum achievable PM levels are likely well below even 12 µg/dscm.

Similarly, State permits indicate that existing LMWCs are achieving SO₂ emissions lower than 18 ppmvd on a 24-hour geometric mean,¹⁷⁴ so EPA should set a maximum achievable SO₂ emission limit no higher than this.

III. EPA MUST REQUIRE CONTINUOUS MONITORING OF ALL 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."¹⁷⁵ 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,"¹⁷⁶ 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 continuous emission monitoring systems ("CEMS") for all regulated pollutants. CEMS is the best available means to monitor emissions in a way that can

¹⁷⁰ Lilian Calderón-Garcidueñas et al., *Hallmarks of Alzheimer disease are evolving relentlessly in Metropolitan Mexico City infants, children and young adults. APOE4 carriers have higher suicide risk and higher odds of reaching NFT stage V at ≤40 years of age*, 164 *Sci. Direct* 475-487 (2018) (attached as Attachment 42).

¹⁷¹ Agency for Toxic Substances and Disease Registry, *ToxFAQs: Sulfur Dioxide* (June 1999), <https://www.atsdr.cdc.gov/toxfaqs/tfacts116.pdf> [<https://perma.cc/L23S-BK5M>].

¹⁷² PBREF II Permit, *supra* note 35 at 25 (attach. 12).

¹⁷³ EPA, Memorandum regarding 2023 Technology Review for the Coal- and Oil-Fired EGU Source Category, *supra* note 94 at 8 (attach. 23).

¹⁷⁴ WIN Baltimore Permit, *supra* note 166 at 16 (attach. 40).

¹⁷⁵ 42 U.S.C. § 7429(c)(1).

¹⁷⁶ *Id.* § 7429(c)(1), (2).

provide adequate data to ensure compliance with emission standards and protect public health and the environment.

CEMS can provide accurate and dependable data, and ultimately ensure that emissions are within permit limits in a way that annual and periodic testing cannot. The current LMWC Standards require no more than annual stack tests for many pollutants, but these infrequent tests provide an extremely limited snapshot of a facility's operations and fail to provide any indication of whether facilities are meeting their emissions limits throughout the year, including during startup, shutdown, and malfunction periods.¹⁷⁷ CEMS, on the other hand, can monitor and ensure compliance with an applicable emission limitation on a continuous basis.¹⁷⁸ The data produced by CEMS is valuable not only for federal and state regulators, but also for industry and the public, since adequate CEMS data can be used for more efficient facility operation while also empowering the public with knowledge on emissions activity, leading to greater transparency and accountability. When emissions are measured only periodically upon stack tests or estimated using emission factors – instead of being continuously monitored – EPA, the public, and facilities themselves are kept unaware of whether emissions are actually exceeding permit limits and endangering public health. It is not enough for EPA merely to *allow* LMWCs to use the available CEMS to monitor their emissions, the Agency must *require* them to do so, including a requirement that CEMS data be made publicly available.

EPA's current emission standards require CEMS for sulfur dioxide, oxides of nitrogen, and carbon monoxide only (in addition to requiring continuous opacity monitors).¹⁷⁹ For particulate matter, cadmium, mercury, hydrogen chloride, and lead, EPA gives incinerators the option to use CEMS as an alternate compliance method, instead of annual stack tests.¹⁸⁰ Unsurprisingly, few if any incinerators have taken up EPA's invitation to continuously monitor their emissions all year long, instead of testing just once a year, and few State agencies have required the incinerators they regulate to continuously monitor these additional pollutants. As explained further below, EPA must *require* LMWCs to use CEMS for all possible pollutants, because EPA's current regime of optional CEMS does not ensure that public health and the environment are protected, as the CAA requires.

A. EPA Should Require CEMS for Particulate Matter.

EPA allows but does not require CEMS for PM.¹⁸¹ This lax approach is not proportionate to the harm that PM presents to the public. Given the serious health risks posed by PM_{2.5} (see Section II.B.5), EPA must require LMWCs to utilize PM CEMS instead of simply giving these facilities the option of CEMS.¹⁸² PM CEMS can also ensure that baghouses are operating properly, since factors such as moisture can compromise baghouse control

¹⁷⁷ See Section V on the Removal of SSM Provisions.

¹⁷⁸ See *EMC: Continuous Emissions Monitoring Systems Information and Guidelines*, EPA, <https://www.epa.gov/emc/emc-continuous-emission-monitoring-systems> [<https://perma.cc/6JVS-9344>] (last updated Sept. 13, 2022).

¹⁷⁹ 40 C.F.R. § 60.58b(c)(8), (e), (h), (i).

¹⁸⁰ *Id.* § 60.58b(c)(10), (d)(3), (d)(4), (f)(8), (n), (o).

¹⁸¹ *Id.* § 60.58b(c)(10).

¹⁸² See NRC Study, *supra* note 2 at 8-9 (attach. 2).

efficiency,¹⁸³ 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, Rupperecht & Patashnick Co., and TSI, Inc.¹⁸⁴

PM CEMS are already required in other contexts. For example, EPA's recently proposed update to its MATS rule 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

B. EPA Should Require CEMS for Mercury.

Despite the scientific data surrounding the dangers of mercury exposure, EPA continues to allow owners and operators of LMWCs the option of CEMS for mercury instead of requiring its use.¹⁸⁸ 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 a 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,¹⁸⁹ 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.¹⁹⁰ 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.¹⁹¹

¹⁸³ EPA, EPA-452/F-03-025, Air Pollution Control Technology Fact Sheet: Fabric Filter - Pulse-Jet Cleaned Type (also referred to as Baghouses) at 5, <https://www.epa.gov/sites/default/files/2020-10/documents/ff-pulse.pdf> (attached as Attachment 43) (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.").

¹⁸⁴ *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) (attached as Attachment 44).

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. at 24,857.

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 visited June 1, 2023) (attached as Attachment 45).

¹⁸⁸ 40 C.F.R. § 60.58b(d)(4).

¹⁸⁹ 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 (attached as Attachment 46).

¹⁹⁰ See Air Permit for Hillsborough County Resource Recovery Facility, Florida DEP, Permit No. 0570261-018-AC/PSD-FL-369E at 6 (June 11, 2015) (attached as Attachment 47).

¹⁹¹ *Advanced Monitoring Systems Center Verified Technologies*, *supra* note 184 (attach. 44); See e.g. Air Pollution Control Ordinance, BOROUGH OF KULPMONT, PA., ORDINANCE NO. 2006-02, art. III(2)(a) (2007),

C. EPA Should Require CEMS for Hydrogen Chloride.

By EPA's own admission, HCl CEMS are necessary to measure compliance, even though the LMWC Standards still do not require them.¹⁹² As early as 2005, EPA recognized that "State agencies, such as those in Michigan, Massachusetts, and Pennsylvania, already require the use of HCl CEMS for MWC units in their jurisdictions."¹⁹³ 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."¹⁹⁴ 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.¹⁹⁵ Covanta's LMWC facility in Chester, Pennsylvania also operates an HCl CEMS¹⁹⁶ as does the Curtis Bay Energy medical waste incinerator in Baltimore.¹⁹⁷ EPA's 2012 MATS rule for coal and oil-fired power plants also requires CEMS for this pollutant.¹⁹⁸ EPA should similarly require LMWCs to use CEMS for hydrogen chloride.¹⁹⁹

D. EPA Should Require CEMS for Dioxins.

Despite the danger that dioxins present (see Section II.B.4), EPA's LMWC Standards do not mandate CEMS for these highly toxic emissions.²⁰⁰ The serious health risks that dioxins pose require EPA to 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.²⁰¹ Kulpmont Borough, Pennsylvania already requires CEMS for dioxin monitoring, and EPA should require it in the LMWC Standards as well.²⁰²

<https://on9ab4.p3cdn1.secureserver.net/wp-content/uploads/2023/02/2006-02-air-pollution.pdf> (attached as Attachment 48); Air Pollution Control Ordinance, WEST READING, PA., ORD. NO. 938 § 131-6(A) (2006), <https://ecode360.com/30061606> (attached as Attachment 49).

¹⁹² 40 C.F.R. § 60.58b(f)(8).

¹⁹³ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,354.

¹⁹⁴ 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 (attached as Attachment 50).

¹⁹⁵ 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> (attached as Attachment 51).

¹⁹⁶ Title V Air Permit for Covanta Delaware Valley, *supra* note 165 at 51 (attach. 39); *see also* Covanta Delaware Valley, Covanta, <https://www.covanta.com/where-we-are/our-facilities/delaware-valley> (last visited June 1, 2023) (attached as Attachment 52).

¹⁹⁷ 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> (attached as Attachment 53).

¹⁹⁸ 40 C.F.R. § Pt. 63, Subpt. UUUUU, App. B., 2.1.

¹⁹⁹ NRC Study, *supra* note 2 at 68 (attach. 2).

²⁰⁰ 40 C.F.R. § 60.58b(g)(10).

²⁰¹ *Advanced Monitoring Systems Center Verified Technologies*, *supra* note 184 (attach. 44).

²⁰² BOROUGH OF KULPMONT, PA., ORDINANCE NO. 2006-02, art. III(2)(a), *supra* note 191 (attach. 48).

E. EPA Should Require CEMS for Cadmium and Lead.

Given the astounding level of harm cadmium and lead can cause the human body (see Section II.B.3), CEMS should be mandatory for these pollutants. Moreover, the technology to monitor these highly toxic metals has existed for over two decades. In 2002, EPA verified the Cooper Environmental Services XCEM Multi-Metals Continuous Emission Monitor, which continuously measures cadmium, lead, and mercury, among other metals.²⁰³ The newer models monitor an even wider range of metals.²⁰⁴ Technological infeasibility is no longer an excuse for lackluster monitoring.

F. EPA Should Increase CEMS Data Availability Percentage Requirements.

During the 2005 proposed rulemaking, EPA proposed increasing the CEMS data availability requirements from 90% to 95% of the operating time per calendar quarter.²⁰⁵ EPA explained that new data indicate that “well-designed and operated CEMS reliably collect data at rates higher than required in current regulations.”²⁰⁶ However, in its final rule, EPA kept the calendar-quarter CEMS data collection requirement at the lower 90%.²⁰⁷ In addition, EPA eliminated the requirement that operators obtain CEMS data for 75% percent of the operating hours per day before the data is counted toward the CEMS data availability requirement. In other words, as the NRC warned in its Waste Incineration and Public Health report, “a municipal-waste incinerator will be allowed to exclude data from 25% of its daily operating time and from 10% of the calendar days per quarter when the plant is operating.”²⁰⁸ Worse still, “the proposed standards and guidelines do not indicate which data may or may not be excluded.”²⁰⁹

The Clean Air Act mandates that EPA’s emission standards must require compliance on a “continuous basis.”²¹⁰ EPA’s rule, however, allows LMWCs to avoid compliance with emission standards for significant portions of time. It allows LMWCs to not collect data for 216 hours — nine days — per quarter (10% of the 2160 hours in a calendar quarter). And because EPA eliminated the requirement for LMWCs to have data for at least 75% of the hours in a day before counting that day’s hours toward the overall data availability requirement, LMWC operators can now claim to be in full compliance even if they have data for only 50% of the hours in 18 days in that quarter. These provisions contravene the CAA’s mandate of “continuous” compliance because they allow LMWCs to operate unmonitored – and thus potentially out of compliance with emission standards – for a substantial portion of the hours in each calendar quarter.²¹¹

Moreover, EPA kept the data availability requirement to only 90% even though it admitted that the record showed that CEMS can provide “more than 99 percent data availability

²⁰³ 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_xmcm.pdf (attached as Attachment 54).

²⁰⁴ *Xact® 640 Multi-Metals Monitor*, SailBri Cooper, Inc., <http://sci-monitoring.com/product/xact-640-multi-metals-monitor/> (last visited June 1, 2023) (attached as Attachment 55) (“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”).

²⁰⁵ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,353.

²⁰⁶ *Id.*

²⁰⁷ 2006 LMWC Standards, 71 Fed. Reg. at 27,329.

²⁰⁸ NRC Study, *supra* note 2 at 211 (attach. 2).

²⁰⁹ *Id.*

²¹⁰ 42 U.S.C. § 7602(k).

²¹¹ *Id.*

for all calendar quarters for all parameters monitored.”²¹² The only rationale that EPA provided for failing to raise the data availability requirement was that a higher requirement might result in some operators installing a backup CEMS to assure compliance,²¹³ as if that would be a worse outcome than the possibility that LMWCs exceed their emission limits during their many unmonitored operating hours. EPA must revise the LMWC Standards to require 99% data availability for all calendar quarters and for all parameters monitored, and EPA should require data for 75% of the hours in a day before counting that day’s hours toward the overall data availability requirement. To require anything less would result in monitoring that fails to “protect public health and the environment” and therefore violates the CAA.²¹⁴

G. EPA Should Require Digital Submittal of Incinerator Emission Data.

EPA’s revision of the LMWC standards must also require that all compliance data is electronically reported to EPA’s Compliance and Emissions Data Reporting Interface (“CEDRI”) system. As EPA has explained, electronic reporting “increase[s] the ease and efficiency of data submittal and data accessibility.”²¹⁵ This data accessibility is of vital importance for when EPA reviews and recalculates the LMWC MACT Floors, since a digital submission requirement will increase administrative efficiency by reducing the Agency’s data-gathering burden. EPA’s recent Good Neighbor Rule already requires certain incinerators to report their NO_x CEMS data to CEDRI,²¹⁶ and EPA should extend that requirement to apply to the performance tests and reports (including CEMS) for all pollutants and for all incinerators. In addition, EPA should ensure that all emissions data submitted to CEDRI is available to the public, as EPA has done in prior rules.²¹⁷

IV. EPA SHOULD REGULATE LMWC EMISSIONS OF POM, PCB, PFAS, AND AMMONIA SLIP.

Congress gave EPA the authority to regulate incinerators’ emissions of additional pollutants not expressly listed in the statutory text of Section 129.²¹⁸ EPA must use that authority to regulate LMWC emissions of additional harmful pollutants like polycyclic organic matter (“POM”), polychlorinated biphenyls (“PCBs”), per- and polyfluoroalkyl substances (“PFAS”), and ammonia slip.

A. The CAA Requires EPA to Regulate LMWC Emissions of POM and PCBs.

Clean Air Act Section 112(c)(6) requires EPA to assure that source categories accounting for not less than 90% of the aggregate emissions of certain highly persistent and bioaccumulative

²¹² 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,353.

²¹³ 2006 LMWC Standards, 71 Fed. Reg. at 27,329.

²¹⁴ 42 U.S.C. § 7429(c)(1).

²¹⁵ See 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. 11556, 11570 (Feb. 23, 2023).

²¹⁶ Good Neighbor Rule, 88 Fed. Reg. at 36,838.

²¹⁷ 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.”).

²¹⁸ 42 U.S.C. § 7429(a)(4) (“[EPA] may promulgate numerical emissions limitations or provide for the monitoring of postcombustion concentrations of surrogate substances, parameters or periods of residence time in excess of stated temperatures with respect to pollutants other than those listed in this paragraph.”).

hazardous air pollutants are subject to MACT-based emission limits.²¹⁹ In 1998, EPA found that “municipal waste combustion” exceeds this threshold for the 112(c)(6) listed pollutants POM (both 16-polyaromatic hydrocarbon and extractable organic matter) and PCBs.²²⁰ EPA promised to regulate incinerators’ emissions of these pollutants under Section 129, stating that “section 129 [i]s a regulatory instrument equivalent to section 112(d)(2).”²²¹ But 25 years later, EPA still has not regulated LMWC emissions of POM or PCBs, under either Sections 129 or 112.

Congress specifically called for heightened attention to these pollutants for good reason. The POM that LMWCs emit are carcinogenic, are easily absorbed into organic material, and chemically react with other compounds in the atmosphere to create “degradation products,” many of which are more toxic than the original POM.²²² PCBs, meanwhile, are particularly dangerous because of their persistence in the environment, their bioaccumulation in humans and marine life and biomagnification up the food chain, and their high motility, as they are easily transported by air and deposited widely into water, soil, and flora.²²³ Studies find that “chronic, low concentration exposure results in inflammation and toxicity, as well as the development and progression of chronic inflammatory diseases, such as obesity, cardiovascular disease, various cancers such as liver, stomach, intestinal, and thyroid cancers, as well as non-Hodgkin lymphoma, and diabetes.”²²⁴

In its 2005 proposed revision to the LMWC Standards, EPA declined to regulate LMWC POM and PCB emissions because, according to EPA, the control measures needed to comply with its existing standards for other pollutants also reduce PCBs and POM “substantially” and “effectively.”²²⁵ But CAA Section 129 and 112 require EPA to set numerical limits for LMWC emissions of POM and PCBs that are no less stringent than the actual performance of the best-performing units, and EPA does not have discretion to decline to regulate these pollutants no matter how “substantially” or “effectively” it assumes LMWCs are already controlling these pollutants.²²⁶ EPA therefore must add numerical emission limits for POM and PCBs to the LMWC Standards.

B. EPA Must Regulate PFAS Emissions.

EPA must also exercise its authority under Section 129 to regulate LMWC emissions of PFAS. The National Institute of Environmental Health Sciences describes PFAS as a “large, complex, and ever-expanding” class of thousands of human-made organic chemicals used in

²¹⁹ 42 U.S.C. § 7412(c)(6).

²²⁰ Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements, 63 Fed. Reg. 17,838, 17,849, Table 2 (Apr. 10, 1998) (also noting “municipal waste combustion” exceeds the threshold for the other 112(c)(6) pollutants dioxins/furans and mercury, which are already listed under Section 129).

²²¹ *Id.* at 17,845, 17,849, Table 2.

²²² Jamie M. Kelly et al., *Global Cancer Risk From Unregulated Polycyclic Aromatic Hydrocarbons*, 5 *Geohealth* 1-19 (2021) (attached as Attachment 56); Hyunok Choi et al., *Polycyclic aromatic hydrocarbons* in WHO GUIDELINES FOR INDOOR AIR QUALITY: SELECTED POLLUTANTS, pgs. 289-345 (2010) (attached as Attachment 57).

²²³ Marta Gabryszewska & Barbara Gworek, *Impact of municipal and industrial waste incinerators on PCBs content in the environment*, 15 *PLOS ONE* 1-13 (2020) (attached as Attachment 58); Prachi Gupta et al., *The Environmental Pollutant, Polychlorinated Biphenyls, and Cardiovascular Disease: a Potential Target for Antioxidant Nanotherapeutics*, 8 *Drug Deliv Transl Res* 740-759 (2018) (attached as Attachment 59).

²²⁴ Gupta et al., *supra* note 223 at 3 (attach. 59).

²²⁵ 2005 LMWC Standards Proposed Rule, 70 Fed. Reg. at 75,356.

²²⁶ 42 U.S.C. §§ 7412(d)(2)-(3), 7429(a)(2).

hundreds of products and industrial processes, including airplane jet engines, firefighting foam, and everyday products like waterproof jackets, nonstick pans, and paints.²²⁷ The carbon-fluorine bond that characterizes PFAS chemicals is “one of the strongest ever created,” making PFAS extremely persistent in the environment and difficult to break down or remediate.²²⁸ The Centers for Disease Control and Prevention (“CDC”) and Agency for Toxic Substances and Disease Registry (“ATSDR”) report 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.²²⁹ 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.²³⁰ The CDC further found that “PFAS exposure may reduce antibody responses to vaccines, and may reduce infectious disease resistance,”²³¹ while the International Agency for Research on Cancer has declared certain PFAS carcinogenic.²³²

PFAS are emitted to the ambient air by chemical manufacturing plants, industrial facilities that use PFAS in their processes, and when ultimately disposed of in waste incinerators. Once in the air, PFAS can be inhaled, particularly by those living nearby sources of air emissions – often environmental justice communities comprised mostly of low-income and/or communities of color – or they can deposit into the water and soil, where they contaminate our drinking water and food.²³³ According to EPA’s own data, over half the country’s PFAS waste is burned, despite the fact that incineration has not been demonstrated to be an effective technique in destroying PFAS chemicals.²³⁴ EPA has previously acknowledged the risk that incinerating PFAS poses considering the chemical bonds of PFAS make them difficult to destroy under typical incineration conditions, admitting that it “has evidence that polymers containing PFAS or PFAC may degrade, possibly by incomplete incineration, and that

²²⁷ National Institute of Environmental Health Sciences, *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)* at 1 (Mar. 2019), https://www.niehs.nih.gov/health/materials/perfluoroalkyl_and_polyfluoroalkyl_substances_508.pdf (attached as Attachment 60).

²²⁸ *Id.*; see also Prepared Testimony of Linda S. Birnbaum, Dir., Nat’l Inst. Env’t Health Sci. & Nat’l Toxicology Program, NIH, *Hearing on “Examining the Federal response to the risks associated with per- and polyfluoroalkyl substances (PFAS)” Before the S. Comm. on Env’t & Pub. Works*, 116th Cong. at 2 (Mar. 28, 2019) (attached as Attachment 61).

²²⁹ 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> (attached as Attachment 62); 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> (attached as Attachment 63).

²³⁰ ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 229 at 6 (attach. 63).

²³¹ 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) (attached as Attachment 64).

²³² ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 229 at 6, 524 (attach. 63).

²³³ EPA, *Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances* at 11 (Dec. 18, 2020) (attached as Attachment 65); see also *Hearing on “Examining the Federal response to the risks associated with per- and polyfluoroalkyl substances (PFAS)” Before the S. Comm. on Env’t & Pub. Works*, 116th Cong. at 4 (2019) [hereinafter *PFAS Hearing*] (attached as Attachment 66) (testimony of Sen. John Barasso).

²³⁴ Anna Reade, *New EPA Data: Huge Amounts of PFAS Underreported and Burned*, NRDC (Oct. 21, 2021), <https://www.nrdc.org/experts/yiliqi/new-epa-data-huge-amounts-pfas-underreported-and-burned-0> (attached as Attachment 67).

these perfluorinated chemical substances may be released into the environment.”²³⁵ While it is possible that combustion at 1,000°C might destroy PFAS, EPA further admits that “it is not well understood how effective high-temperature combustion is in completely destroying PFAS or whether the process can form fluorinated or mixed halogenated organic byproducts.”²³⁶ Worse still, some short chain PFAS – the type of PFAS manufacturers began producing more of in lieu of long-chain PFAS when concerns over the toxicity, human health, and bioaccumulation of long-chain PFAS began surfacing²³⁷ – have been particularly difficult to destroy via combustion, some “requiring temperatures over 1,400°C (2,550°F).”²³⁸ Despite this uncertainty, incinerators are still allowed to emit unknown amount of PFAS into the air. While these emissions will have a profound and primary impact on those closest to the source, PFAS can travel thousands of miles from their original release site by air or water, meaning their impact is borderless and all the more dangerous.²³⁹

There is overwhelming evidence that PFAS are a critical and persistent ambient threat to public health, and the Clean Air Act mandates that EPA set standards and monitor the emissions to protect people from toxic air pollutants that can cause dire health effects like the numerous serious risks PFAS pose.²⁴⁰ EPA agrees that “exposure to PFAS is an urgent public health and environmental issue in the United States” because they are “highly persistent in the environment” and “have the ability to bioaccumulate.”²⁴¹ In light of the well-established body of scientific evidence demonstrating that PFAS air pollution poses a threat to public health and EPA’s own acknowledgments, the Agency has an obligation to regulate the burning of PFAS-containing materials in LMWCs.

When setting PFAS emission limits and monitoring requirements in the LMWC Standards, EPA should list the entire class as a regulated pollutant. As stated during a Senate Committee hearing by Linda Birnbaum, then-Director of the National Institute of Environmental Health Sciences and The National Toxicology Program, “Approaching PFAS as a class, rather than as thousands of individual compounds, is the best approach for assessing exposure and biological impact, and for protecting public health.”²⁴² Regulating PFAS as a class is especially important considering the breadth of the PFAS category, the ability of PFAS to spread thousands of miles beyond their point of origin, the risk of bioaccumulation, the creation of more PFAS by burning PFAS, and the fact that there remain many unknowns regarding the emissions levels and toxicity most types of PFAS.²⁴³

²³⁵ Premanufacture Notification Exemption for Polymers; Amendment of Polymer Exemption Rule to Exclude Certain Perfluorinated Polymers, 75 Fed. Reg. at 4,298 (Jan. 27, 2010).

²³⁶ EPA, *Interim Guidance on the Destruction and Disposal of PFAS*, *supra* note 233 at 41 (attach. 65).

²³⁷ Stephen K. Ritter, *Fluorochemicals Go Short*, C&EN (Feb. 1, 2020), <https://cen.acs.org/articles/88/i5/Fluorochemicals-Short.html> (attached as Attachment 68).

²³⁸ EPA, *Interim Guidance on the Destruction and Disposal of PFAS*, *supra* note 233 at 39 (attach. 65).

²³⁹ *Id.* at 11; ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 229 at 669-675 (attach. 63).

²⁴⁰ See 42 U.S.C. § 7429(c).

²⁴¹ Pesticides; Proposed Removal of PFAS Chemicals From Approved Inert Ingredient List for Pesticide Products, 87 Fed. Reg. at 56,052 (Sept. 13, 2022).

²⁴² *PFAS Hearing*, 116th Cong., *supra* note 233 at 32 (attach. 66) (testimony of Dr. Linda Birnbaum).

²⁴³ See ATSDR, *Toxicological Profile for Perfluoroalkyls*, *supra* note 229 at 4, 665 (attach. 63).

C. EPA Should Set an Ammonia Slip Limit.

EPA should establish a limit for ammonia slip. State regulators have imposed ammonia slip limits along with NO_x limits to ensure that the materials used for NO_x control – urea or ammonia – do not contribute to particulate matter formation. For example, 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.²⁴⁴ EPA should impose an ammonia slip limit in order to ensure efficient performance of NO_x controls.

D. EPA Should Require CEMS for Newly Regulated Pollutants.

When EPA newly regulates additional pollutants like POM, PFAS, PCBs, and ammonia slip under Section 129, it should require LMWCs to use CEMS to monitor them. For the reasons stated in Section III above, CEMS are the only way to ensure continuous compliance with these emission standards, as the CAA requires.

To the extent that EPA believes it needs more LMWC emissions data for these pollutants before it can set MACT-based emission limits for these pollutants, in its forthcoming update to the LMWC Standards, EPA should require LMWCs to monitor and report their emissions of these pollutants. As soon as EPA has sufficient data to set MACT standards for these new pollutants – and no later than EPA’s next required LMWC Standards revision 5 years after the current rulemaking²⁴⁵ – EPA should then amend the LMWC Standards to include the new emission limits.

V. EPA MUST REMOVE SSM EXEMPTIONS FROM THE LMWC STANDARDS.

EPA’s revision of the LMWC Standards must remove the illegal exemptions during startup, shutdown, and malfunction (“SSM”) in the current rules. The plain language of the CAA requires EPA to promulgate emission standards that are “continuous” and apply at all times.²⁴⁶ 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 NESHAP numerical emission limits during SSM periods violates the CAA, so the court vacated EPA’s illegal SSM exemption.²⁴⁷ EPA subsequently recognized that the court’s reasoning to invalidate SSM exemptions for NESHAPs applies just as equally to emission limits in New Source Performance Standards (“NSPS”).²⁴⁸

²⁴⁴ PBREF II Permit, *supra* note 35 at 25 (attach. 12); Title V Operating Permit for Wheelabrator Bridgeport, CT DEP Bureau of Air Management, Permit No. 015-0219-TV at 30 (Apr. 28, 2022) (attached as Attachment 69); Air Pollution Control Operating Permit Significant Modification for Wheelabrator Gloucester, NJ DEP, Permit Activity No. BOP180001 at 39 (Apr. 12, 2019) (attached as Attachment 70).

²⁴⁵ 42 U.S.C. § 7429(a)(5).

²⁴⁶ *See* 42 U.S.C. § 7602(k).

²⁴⁷ *See Sierra Club v. EPA*, 551 F.3d 1019, 1026–28 (D.C. Cir. 2018) (citing 42 U.S.C. § 7602(k)).

²⁴⁸ 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 33,840, 33,907–08, 33,912 (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.”).

Accordingly, EPA's post-2008 emission standards no longer include SSM exemptions,²⁴⁹ and EPA has been removing illegal SSM exemptions in pre-2008 rules as it reviews and revises them.²⁵⁰ Indeed, EPA has already removed the unlawful exemptions from Section 129 emission limits for other incinerator categories, such as medical waste incinerators.²⁵¹ But EPA has yet to remove the SSM exemption from the LMWC Standards, which continue to state that its emission limits "apply at all times except during periods of startup, shutdown, and malfunction."²⁵² It is high time the Agency removes this illegal exemption from the LMWC Standards.

The emission limits that apply to LMWCs during normal operation should be at least as stringent as those that apply during SSM periods. 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."²⁵³ 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. At the very least, if EPA continues to distinguish SSM and non-SSM periods, the SSM limit should be the same as the limit during normal operations – this is the approach that EPA took in its recent Good Neighbor Rule, which applies the same NO_x emission limits during normal operations and SSM, with only a change to the stack oxygen content requirement.²⁵⁴ In no case could 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.²⁵⁵ And, as the NRC has recommended, under no circumstance should SSM emissions be excluded from LMWC emission data reports.²⁵⁶

To the extent that provisions in compliance with the above principles require EPA to define "startup," "shutdown," or "malfunction," EPA must revise the current rule's definitions for these periods so that the start and end are based on air pollution control and temperature requirements, instead of vague and overbroad limitations that allow facilities to define the start

²⁴⁹ See *id.* at 33,890.

²⁵⁰ 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 ("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.").

²⁵¹ Standards of Performance for New Stationary Sources and Emissions Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 74 Fed. Reg. at 51,394 (Oct. 6, 2009) (removing SSM exemptions for medical waste incinerators at 40 C.F.R. §§ 60.56c(a) and 60.37e(a)).

²⁵² 40 C.F.R. § 60.58b(a)(1).

²⁵³ *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)).

²⁵⁴ Good Neighbor Rule, 88 Fed. Reg. at 36,837-38.

²⁵⁵ 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.").

²⁵⁶ NRC Study, *supra* note 2 at 215 (attach. 2) ("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.").

and end of a startup or shutdown period as they would like for a period up to three hours – or 15 hours for some types of malfunctions.²⁵⁷

Thus, in accordance with established case law and EPA’s own interpretation of the CAA, the Agency must do away with the SSM exemptions in the LMWC Standards and require the same emission limits to apply during all stages of operation at LMWCs.²⁵⁸ Given that EPA has kept this SSM exemption in place for a decade and a half after the D.C. Circuit made clear that these SSM exemptions are illegal, EPA should fast track the elimination of this exemption in the LMWC Standards (in 40 C.F.R. Part 60 Subparts Cb and Eb) as well as all currently applicable federal plans (in 40 C.F.R. Part 62 Subpart FFF) through a proposed rule issued in 30 days and finalized soon thereafter. Regardless of the timing of the rule to remove the SSM exemption, however, EPA should make the removal of SSM exemptions apply immediately and without delay, as the agency has done in other instances.²⁵⁹

VI. EPA MUST STRENGTHEN THE PROHIBITION ON BURNING MEDICAL AND INDUSTRIAL PROCESS WASTE AT LMWCs.

The LMWC Standards define “municipal solid waste” as “household, commercial/retail, and/or institutional waste,” but the definition expressly “does not include . . . industrial process or manufacturing wastes [or] medical waste.”²⁶⁰ But LMWCs across the country are violating the plain language of the regulations and burning medical and/or industrial waste that EPA’s regulations do not allow them to burn. The Covanta Camden LMWC, for example, seeks a permit amendment to burn industrial and manufacturing liquid waste from pharmaceuticals and other industrial operations, offering to financially compensate the community if the amendment is approved.²⁶¹ Meanwhile, Covanta’s LMWC in Marion, Oregon has been steadily increasing the amount of medical waste it burns, with 16,335 tons of medical waste burned in 2022, ranking

²⁵⁷ See 40 C.F.R. § 60.58b(a).

²⁵⁸ Additionally, EPA should finalize its rule, first proposed in 2016 then again in 2022, removing the “emergency” affirmative defense provisions for major sources under Title V from 40 C.F.R. §§ 70.6(g) and 71.6(g). These affirmative defense provisions continue to exist in many state permits for LMWCs and continue to impermissibly excuse pollution events that harm the health in the surrounding communities. In *Nat. Res. Def. Council*, 749 F.3d at 1063, the court declared affirmative defense provisions to permit violations impermissible since the CAA says only courts – not EPA – can decide whether a particular violation is excusable. EPA has since adhered to this ruling in subsequent rulemaking and policy memos, and in continuation of this effort, the Agency should finalize the removal of these affirmative defense provisions across the board.

²⁵⁹ 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 (Feb. 23, 2023) (“[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[.]”).

²⁶⁰ 40 C.F.R. § 60.51b.

²⁶¹ See Decades of Denial Report, *supra* note 1 at 4-5 (attach. 1); Covanta Camden, Application for a Major Modification to Solid Waste Facility Permit at 3.2.2 (Sept. 2022) (attached as Attachment 71); Covanta, Covanta Camden AO 2021-25 Public Hearing at 25, 26 (Dec. 8, 2022), <https://4944195.fs1.hubspotusercontent-na1.net/hubfs/4944195/Camden-12-8-2022-EJ%20Hearing%20Presentation.pdf> (attached as Attachment 72); Camden County Energy Recovery Associates, L.P., City of Camden – Waterfront South & Morgan Village Covanta Community Benefits Agreement § VI (June 2022) (attached as Attachment 73).

this LMWC facility as the fourth largest burner of medical waste in the nation.²⁶² This is despite the clear statement in EPA’s regulations on medical waste incinerators that “any device that combusts any amount of hospital waste and/or medical/infectious waste” would be covered by EPA’s medical waste incinerator standards, not the LMWC Standards.²⁶³

EPA must clarify in the LMWC Standards that an incinerator that burns any amount of hospital/medical/infectious waste is regulated as a Hospital/Medical/Infectious Waste Incinerator – not a LMWC – and that an incinerator that burns any amount of industrial or manufacturing process waste is regulated as a Commercial and Industrial Solid Waste Incinerator – not a LMWC – and must meet the emission limits that apply to the appropriate incinerator category. It would otherwise violate the CAA’s clear distinctions between these incinerator categories if EPA continued to allow facilities to blur the statutorily mandated lines between the types of waste they burn.²⁶⁴

Burning medical waste emits pollutants even more dangerous than those from the average waste stream, because burning medical waste often releases heavy metals, dioxins, and other highly toxic pollutants since it is so plastic-heavy.²⁶⁵ According to a 2006 EPA study, medical waste incinerators are the second-largest source of dioxin-like emissions nationwide.²⁶⁶ For this reason, the World Health Organization discourages the practice of burning medical waste, advocating instead for alternatives and reducing the volume of waste generated in the first place.²⁶⁷ EPA must put a stop to LMWCs seeking to burn medical and industrial waste by enforcing the plain language of the statute and further clarifying that the burning of any amount of medical and/or industrial waste at LMWCs is strictly prohibited, without exception.

VII. EPA MUST REQUIRE PRE-COMBUSTION CONTROL MEASURES AS PART OF THE LMWC STANDARDS.

EPA must include pre-combustion measures in its LMWC Standards. 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.”²⁶⁸ Yet none of EPA’s LMWC Standards require or even reference pre-combustion measures. The closest that the current LMWC Standards come to touching upon pre-combustion

²⁶² Tracy Loew, *Oregon bill to reduce emissions from Covanta Marion garbage burner could be watered down*, STATESMAN JOURNAL (Mar. 30, 2023), <https://www.statesmanjournal.com/story/news/politics/2023/03/30/brooks-oregon-covanta-marion-garbage-burner-emissions-air-pollutants/70053911007/> (attached as Attachment 74).

²⁶³ 40 C.F.R. § 60.51c.

²⁶⁴ See 42 U.S.C. § 7429(a)(1).

²⁶⁵ Kevin Budris, *Burning Medical Waste is a Toxic Business*, CONSERVATION LAW FOUNDATION (June 16, 2020), <https://www.clf.org/blog/burning-medical-waste-dangers/> (attached as Attachment 75).

²⁶⁶ U.S. Env’tl. Prot. Agency, *An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000* at xxxiv, Table 1-17 (Nov. 2006), http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=459709 [<https://perma.cc/7J67-2VKT>] (“Dioxin-like refers to the fact that these compounds have similar chemical structure and physical-chemical properties and invoke a common toxic response.”).

²⁶⁷ *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> (attached as Attachment 76); *Health-care waste*, WORLD HEALTH ORG. (Feb. 8, 2018), <https://www.who.int/news-room/fact-sheets/detail/health-care-waste> (attached as Attachment 77).

²⁶⁸ 42 U.S.C. § 7429(a)(3) (emphasis added).

measures is the requirement that new LMWC facilities develop a materials separation plan with the goal “to separate certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling.”²⁶⁹ These provisions only provide suggestions about the elements and goals that this materials separation plan “may include” or “suggested issues” that should be raised in a public hearing about the plan.²⁷⁰ But nowhere does the regulation say what the plan *must* contain or what happens if a facility does not adhere to the plan. And what’s worse, existing LMWCs built before 1995 – the majority of LMWCs – do not even have to develop a material separation plan.

EPA’s failure to require true pre-combustion measures is impermissible not only because these measures are statutorily required, but also because they can yield additional, significant reductions in incinerator emissions. Removing substances such as mercury, lead, and chlorinated plastics from the waste stream prior to combustion will reduce emissions of these pollutants from the smokestack, as well as the dioxins, hydrochloric acid, and PCBs emitted by the burning of chlorinated plastics. As the D.C. Circuit noted when considering pre-combustion controls for medical waste incinerators, “The less mercury in, the less mercury out, and the less chlorinated plastic in, the less HCl out.”²⁷¹ EPA itself has stated 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.”²⁷² For PCBs in particular, EPA has also admitted that for hazardous waste incinerators, “the major source of . . . PCB emissions is thought to be from PCBs in the waste (that are not destroyed in the combustion zone),”²⁷³ and the same applies to LMWCs. The failure to require pre-combustion measures also contradicts EPA’s own waste disposal hierarchy, which makes clear that pollution prevention and recycling are priorities.²⁷⁴ Moreover, records from States that have successfully implemented pre-combustion requirements are further proof that pre-combustion measures are necessary and effective.²⁷⁵ As discussed in Section VIII below, the lack of adequate pre-combustion controls can also result in poor safety management and accidents that cause overwhelming amounts of damage to facilities and the surrounding communities.

EPA should also require incinerators to sort out the organic waste from their waste stream and redirect it, as appropriate, to composting and recycling facilities. EPA and others have found that, “Because of the kind of fuel MWCs use and the relatively low temperatures at which they operate, 70–80% of NO_x formed in MSW incineration is associated with nitrogen in the

²⁶⁹ 40 C.F.R. §§ 60.51b, 60.57b.

²⁷⁰ *Id.*

²⁷¹ *Sierra Club v. EPA*, 167 F.3d 658, 666 (D.C. Cir. 1999).

²⁷² Comments of Earthjustice on 2005 LMWC Standards Proposed Rule, *supra* note 25 at 6 (attached to Exhibit 1 of Mandamus Petition [attach. 8]) (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]).

²⁷³ EPA, Technical Support Document for HWC MACT Standards Vol. III, at 3-9 (Sept. 2005) (attached as Attachment 78).

²⁷⁴ *See* 42 U.S.C. § 7429(a)(3); *Learn About Pollution Prevention*, EPA, <https://www.epa.gov/p2/learn-about-pollution-prevention#p2> (last updated Mar. 8, 2023) (attached as Attachment 79).

²⁷⁵ *E.g.*, Letter from William O’Sullivan, NJ DEP, to Fred Porter, EPA regarding Proposed New Source Performance Standards and Emissions Guidelines for Medical Waste Incinerators (July 7, 1997) (attached as Attachment 80).

MSW.”²⁷⁶ And since nitrogen is primarily found in organic waste,²⁷⁷ as opposed to the inorganic waste with comparatively smaller concentrations of nitrogen,²⁷⁸ EPA’s LMWC Standards should require the sorting out of organic wastes prior to being burned as a NOx emission reduction measure. This is especially important since, as noted in Section II.B.2 above, NOx reductions at LMWCs have been a particular challenge. To reduce emissions of these pollutants from incinerators, EPA must require LMWCs to sort out organics prior to incineration and properly divert them to composting and recycling facilities.

The technology and system design necessary to carry out effective pre-combustion sorting are already available and should therefore be required by EPA. In a design report drafted by a waste management consulting firm for a LMWC facility seeking to improve pre-combustion sorting, the firm 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.²⁷⁹ The firm recommended a multi-screen system that separates larger materials from smaller ones, along with a shredder, magnets, ballistic separators, eddy current separators, optical units, and human sorters.²⁸⁰ The recovered and sorted material would then be properly diverted to composting and recycling facilities.²⁸¹ EPA should require LMWCs to upgrade their facilities to include these existing technologies that facilitate pre-combustion sorting.

The LMWC Standards should also include additional, basic pre-combustion control measures such as: requiring throwdown inspection of all non-residential loads; periodic and detailed waste audits kept for a minimum of five years for proper data comparison of the waste

²⁷⁶ SC&A, Inc. on behalf of EPA, NOx Emission Control Technology Installation Timing for Non-EGU Sources Final Report at 13 (Mar. 14, 2023), https://www.epa.gov/system/files/documents/2023-03/NOx%20Control%20Installation%20Timing_FinalReport_GoodNeighborFinalRule.pdf (attached as Attachment 81); 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) (attached as Attachment 82) (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); cf. EPA, *Advancing Sustainable Materials Management: 2018 Fact Sheet. Assessing Trends in Materials Generation and Management in the United States* (Dec. 2020), https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf (attached as Attachment 83) (In contrast, 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).

²⁷⁷ 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) (attached as Attachment 84); see Zhang et al., *supra* note 276 (attach. 82).

²⁷⁸ EPA, *Advancing Sustainable Materials Management*, *supra* note 276 (attach. 83) (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.).

²⁷⁹ 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) (attached as Attachment 85) (“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.”).

²⁸⁰ *Id.*

²⁸¹ *Id.* at 12.

stream; detailed waste inspection procedures; and mandatory installation of sensors and inspection technologies.

The multi-year purple plume saga at Covanta's Newark incinerator is a perfect example of the harms from a lack of proper pre-combustion controls.²⁸² For years, Newark residents witnessed pink or purple plumes from the Newark incinerator's smokestacks that increased in frequency in 2019 and 2020. Residents repeatedly contacted New Jersey regulators, but neither the regulators nor Covanta itself was able to identify the source or prevent the purple plumes. After at least fifteen instances of these brightly colored emissions, each associated with a permit violation, Covanta eventually identified the cause of the suspicious plumes as iodine in the waste stream (an unpermitted waste), mostly likely coming from a nearby pesticide manufacturer.²⁸³ While these purple plume incidents received much attention because of the conspicuous, colorful smoke they caused, LMWCs are likely, and perhaps unknowingly, burning many other types of less conspicuous – but equally unpermitted – harmful wastes that slide by because of poor pre-combustion inspections. The incident in Newark highlights the inadequacies of current waste inspection protocols and the need to incorporate pre-combustion conditions into the LMWC Standards to protect public health.

Not only should LMWCs establish protective pre-combustion control measures, but they should also be required to make the data collected from their pre-combustion monitoring public. Increased transparency about what is being burned in these facilities will go a long way 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.

VIII. EPA MUST STRENGTHEN SAFETY PROVISIONS TO PREVENT ACCIDENTS AND MALFUNCTIONS AT LMWCs.

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

EPA must revise the LMWC Standards to ensure that LMWCs are operated safely, since the current regulations clearly are not doing enough to prevent fires and other accidents. Time and again, incinerators are on the news for accidental fires that engulf surrounding neighborhoods with noxious smoke for hours or even days, further exacerbating respiratory issues.²⁸⁴ The incinerator fire in Doral, Florida, for example, took three weeks to put out, only

²⁸² See Decades of Denial Report, *supra* note 1 at 8-9 (attach. 1).

²⁸³ See Summary of Violations Chart for Covanta Essex from NJDEP DataMiner (Oct. 23, 2019) (attached as Attachment 86); Covanta Essex, Response to NJDEP Comments on Iodine Monitor Evaluation Report (Apr. 6, 2021), https://f.hubspotusercontent40.net/hubfs/4944195/Response%20to%20comments%20on%20Iodine%20Monitor%20Report_04.06.21.pdf (attached as Attachment 87).

²⁸⁴ See e.g., 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> (attached as Attachment 88) (burned for over a week); Cody Boteler, *After the fire: Revamping one of Covanta's biggest facilities after it went up in smoke*, WASTE DIVE (Apr. 24, 2018), <https://www.wastedive.com/news/after-the-fire-revamping-one-of-covantas-biggest-facilities-after-it-went/521241/> (attached as Attachment 89) (burned for over three days); Patrick Cassidy, *SEMASS blaze called 'catastrophic'*, CAPE COD TIMES (Apr. 2, 2007),

for another one to break out just two months later.²⁸⁵ This is the fifth fire at the Doral facility in the last four years.²⁸⁶ During the three-week fire, residents complained of nausea, headaches, and asthma flare-ups, among other symptoms.²⁸⁷ This Doral incinerator fire is the latest in a string of fires at incinerators like the ones in Fairfax County, Virginia,²⁸⁸ and Southeastern Massachusetts.²⁸⁹ The cause of these fires is often something igniting on the conveyor belt,²⁹⁰ the tipping floor,²⁹¹ or some other part of facility that is not designed for the control of combustion.

LMWCs are subject to the CAA's 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."²⁹² But this general duty carries with it no specific conditions or monitoring, recordkeeping, or reporting requirements – and so is effectively unenforceable. And the general duty by itself is clearly insufficient, since incinerators are repeatedly catching on fire and having other accidents notwithstanding the application of this general duty provision.

Incinerators can take concrete steps to prevent or minimize the likelihood of these accidents, and EPA's LMWC Standards should require these steps. After the devastating 2017 fire at Covanta's Fairfax County facility, the facility implemented many preventative measures to avoid the recurrence of fires and other accidents. During the nearly year-long closure of its facility after the fire, Covanta installed thermal imaging cameras to monitor incoming loads, the pit, and the tipping floor to identify potential hazards or the source of a blaze through smoke so as to better deploy fire suppression efforts.²⁹³ Other technological improvements included installing better sprinklers, a noncombustible roof system, a motor-operated roof hatch, and an automatic cycle that deploys water cannons and calls 911 if not aborted by the control room operator in 10 seconds when waste pit sensors detect a fire.²⁹⁴ Covanta also implemented additional basic safety measures such as creating a no-dump zone within fifteen feet of the pit demarcated by a green laser line on the floor and another red line at the 6-foot interval, and a policy that waste not be allowed to remain on the tipping floor overnight.²⁹⁵ These measures,

<https://www.capecodtimes.com/story/news/2007/04/02/semass-blaze-called-catastrophic/52938255007/> (attached as Attachment 90).

²⁸⁵ David J. Neal, *Another Miami-Dade facility fire sends up black smoke and closes a street at rush hour*, MIAMI HERALD (Apr. 20, 2023), <https://www.miamiherald.com/article274526536.html#storylink=cpy> (attached as Attachment 91).

²⁸⁶ Dominique Burkhardt et al., *The Doral Incinerator Fire*, EARTHJUSTICE (June 2023), https://earthjustice.org/wp-content/uploads/2023/05/20230531_doral-incinerator-fire-report3.pdf (attached as Attachment 92).

²⁸⁷ *Id.* at 2 n.5 ("According to a Miami-Dade Fire Rescue report, the fire was placed under control on March 2, 2023 at 3 p.m."); Vassolo, *supra* note 284 (attach. 88); *see also* Decades of Denial Report, *supra* note 1 at 6-7 (attach. 1); Miami-Dade Fire Rescue, Demobilization Plan for Covanta Plant Fire (Mar. 27, 2023) (attached as Attachment 93).

²⁸⁸ Boteler, *supra* note 284 (attach. 89).

²⁸⁹ Cassidy, *supra* note 284 (attach. 90).

²⁹⁰ *See* Genevieve Bowen, *Debris blocks use of waste-to-energy plant*, MIAMI TODAY (Apr. 18, 2023), <https://www.miamitodaynews.com/2023/04/18/debris-blocks-use-of-waste-to-energy-plant/> (attached as Attachment 94).

²⁹¹ Boteler, *supra* note 284 (attach. 89) (The fire damaged the facility so badly that they had to remain closed for almost a year as they made repairs.).

²⁹² 42 U.S.C. § 7412(r)(1); *see also* 42 U.S.C. § 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).

²⁹³ Boteler, *supra* note 284 (attach. 89).

²⁹⁴ *Id.*

²⁹⁵ *Id.*

however, are being implemented by Covanta of its own volition and are not incorporated into any operating permit, meaning the facility could roll back these safety measures if it so desired.²⁹⁶ To protect the public and ensure enforceability, EPA should require all LMWCs to implement measures like these to significantly reduce the likelihood of fires.

In addition, and as explained in Section VII on Pre-Combustion Controls, EPA's LMWC Standards should require facilities to use all types of available sensors, sorting, and inspection technology to sort waste before sending it into the boilers, and the rules should require facilities to conduct throwdown inspections of all loads, or at the very least all non-residential loads. Data collection measures such as periodic and detailed waste audits regarding the types of waste being burned would also aid in reducing harmful emissions, as catalogued knowledge of what is being burned can facilitate isolating and removing particularly harmful substances. These measures would significantly reduce the likelihood of prohibited and dangerous waste being improperly accepted and discarded into boilers and causing accidents.

Finally, EPA should require LMWCs to notify their State Emergency Response Commission under the Emergency Planning and Community Right-to-Know Act ("EPCRA") Section 302,²⁹⁷ so that LMWCs can be properly included in EPCRA emergency response plans. The Doral Incinerator is not included in Florida's EPCRA emergency response plan, and this may have hampered emergency response efforts immediately after the recent fires at the facility. EPA should require LMWCs in Florida and other states to notify under EPCRA and thereby be included in the applicable emergency response plans, regardless of whether EPCRA hazardous substances are present at the LMWC above threshold planning quantities. Communities should not be denied protections from the very real possibility of LMWC fires and other accidents merely because of legal technicalities.

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

EPA must also strengthen the LMWC Standards' lax requirements for incinerator operator certification, which currently violate the CAA. The CAA requires EPA to develop a program for "training and certification" of incinerator operators and provides 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]."²⁹⁸ Congress enacted this provision 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.²⁹⁹ Thus, each LMWC may only lawfully be operated by a person who has fully completed the training and certification requirements established by EPA.

But EPA's LMWC Standards allow someone who has not "satisfactorily completed" the required training program to operate an LMWC, in clear contravention of the Act. EPA's regulations provide that "provisionally" certified chief facility operators and shift supervisors

²⁹⁶ Covanta's Fairfax Facility is operating under a permit by rule and therefore does not even have a solid waste permit in which it could include these measures in writing. See Title V Operating Permit for Covanta Fairfax, *supra* note 167 (attach. 41).

²⁹⁷ 42 U.S.C. § 11002.

²⁹⁸ *Id.* § 7429(d).

²⁹⁹ See *id.* § 7401(b)(1).

who have not yet taken the full certification exam can perform the duties of a fully certified operator/supervisor 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.³⁰⁰ And a newly promoted or transferred “provisionally certified” operator/supervisor may fulfill the duties for a fully certified operator/supervisor for up to six months with no notice or approval by EPA needed.³⁰¹

Because EPA added the provision about newly promoted or transferred “provisionally certified” operators/supervisors to the 2006 LMWC Final Rule but did not include it in the Proposed Rule that preceded it, Sierra Club petitioned EPA for reconsideration of this provision.³⁰² On March 20, 2007, EPA issued a Notice declaring that it would reconsider this certification provision of the LMWC rule,³⁰³ but in the decade and a half since, EPA has still not proposed amendments to the regulations or give any indication that it had initiated or completed its reconsideration of this matter.

EPA must follow through with its commitment and strengthen the certification provisions of the LMWC Standards. The CAA requires all persons to “satisfactorily complete[]” a “training program” before they may operate a LMWC.³⁰⁴ The training program that EPA established pursuant to Section 129(d) contains both “training” and “certification” requirements.³⁰⁵ A person has not “completed” such training program until they are fully certified. Therefore, it is unlawful to operate a LMWC unless each person with control over processes affecting emissions — and, at a minimum, each person performing the duty of a chief facility operator or shift supervisor — is fully certified. Being “provisionally certified” is not equivalent to fully certified, and by allowing LMWCs to operate for six months at a time or more with operators that are only “provisionally” certified, EPA contravenes Section 129(d).

Moreover, new technologies and requirements are added to facility operations on a continuous basis. And as the NRC noted, “[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.”³⁰⁶ EPA should therefore heed NRC’s recommendation and require periodic renewal and re-testing of training certifications for new technologies, practices, and regulations.

EPA has set up a regulatory regime in which personnel who are not fully certified operate incinerators that have inadequate safety measures. As a result, incinerators experience frequent malfunctions and fires that can significantly worsen air quality in the surrounding communities. EPA must therefore strengthen its regulations to require only fully certified personnel to operate

³⁰⁰ 40 C.F.R. § 60.54b(c)(2) (Subpart Eb); *see also* 40 C.F.R. § 60.35b (incorporating the Subpart Eb certification standards).

³⁰¹ 40 C.F.R. § 60.54b(c)(3).

³⁰² Earthjustice Petition to EPA regarding 2006 LMWC Standards, *supra* note 148 at 1-3 (attach. 36).

³⁰³ Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors, 72 Fed. Reg. at 13,016 (Mar. 20, 2007) (“ . . . EPA is announcing its reconsideration of three aspects of the rule: operator stand-in provisions, data requirements for continuous monitors, and the status of operating parameters during the 2 weeks prior to mercury and dioxin/furan testing.”).

³⁰⁴ 42 U.S.C. § 7429(d).

³⁰⁵ *Id.* § 7429(d); 40 C.F.R. § 60.54b(b), (c)(1)-(2).

³⁰⁶ NRC Study, *supra* note 2 at 215 (attach. 2).

³⁰⁶ *See* 42 U.S.C. § 7401(b)(1).

LMWCs, and the Agency should require additional safety measures to ensure that incinerators do not catch fire or create other accidents.

IX. EPA SHOULD STRENGTHEN ITS SITING REQUIREMENTS FOR NEW LWMCS.

EPA should update the inadequate siting requirements in the current LMWC Standards to reflect civil rights and environmental justice requirements. The CAA requires that EPA’s standards “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.”³⁰⁷ But EPA’s current LMWC Standards do not include anything that could be considered a “siting requirement” within the meaning of the Act. Instead, 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.³⁰⁸ 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 demographics or pre-existing environmental conditions of the proposed site.³⁰⁹ 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.³¹⁰

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 calls out this CAA “siting requirement” provision as 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.”³¹¹ 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 129.³¹²

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

³⁰⁷ *Id.* § 7429(a)(3).

³⁰⁸ 40 C.F.R. § 60.57b.

³⁰⁹ *Id.* § 60.57b(b)(1), (2).

³¹⁰ 42 U.S.C. § 7429(a)(3).

³¹¹ EPA, *EPA Legal Tools to Advance Environmental Justice*, *supra* note 112 at 12-13 (attach. 25).

³¹² 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> (attached as Attachment 95).

origin” in any of their programs or activities, including permitting programs.³¹³ 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.”³¹⁴ 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.³¹⁵ 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.³¹⁶ EPA should heed its own recommendations to prevent these harms before they start by strengthening 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.

X. CONCLUSION

It has been over thirty years since Congress told EPA to protect the public from the harms of incinerator pollution, and environmental justice communities are still waiting for those protections. 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 must revise its LMWC Standards as outlined above to ensure maximum protections for surrounding communities.

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³¹³ 42 U.S.C. § 2000d; 40 C.F.R. Part 7.

³¹⁴ EPA, *Interim Environmental Justice and Civil Rights in Permitting Frequently Asked Questions* at 6 (Aug. 2022), <https://www.epa.gov/system/files/documents/2022-08/EJ%20and%20CR%20in%20PERMITTING%20FAQs%20508%20compliant.pdf> (attached as Attachment 96).

³¹⁵ 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) (attached as Attachment 97).

³¹⁶ See *supra* Section I.