UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Revisions to the Air Emissions Reporting Requirements, 88 Fed. Reg. 54,118 (August 9, 2023)	Docket No. EPA-HQ-OAR-2004-0489

COMMENTS OF EARTHJUSTICE, ENVIRONMENTAL DEFENSE FUND, ENVIRONMENTAL INTEGRITY PROJECT, SOUTHERN ENVIRONMENTAL LAW CENTER, UNION OF CONCERNED SCIENTISTS, AIR ALLIANCE HOUSTON, ALASKA COMMUNITY ACTION ON TOXICS, BLACK APPALACHIAN COALITION, CALIFORNIA COMMUNITIES AGAINST TOXICS, CHEROKEE CONCERNED CITIZENS, CHESAPEAKE LEGAL ALLIANCE, CLEAN AIR COUNCIL, DO GOOD LLC, DUWAMISH RIVER COMMUNITY COALITION, ENVIRONMENTAL HEALTH PROJECT, FOOD & WATER WATCH, FRACTRACKER ALLIANCE, GLOBAL ALLIANCE FOR INCINERATOR ALTERNATIVES, GREENPEACE USA, JOIN FOR CLEAN AIR, LOUISIANA BUCKET BRIGADE, MICAH SIX EIGHT MISSION, MOMS CLEAN AIR FORCE, PENNFUTURE, PLASTIC POLLUTION COALITION, SIERRA CLUB, TEXAS CAMPAIGN FOR THE ENVIRONMENT, THE VESSEL PROJECT OF LOUISIANA, and ZERO WASTE WASHINGTON

Submitted via regulations.gov and email on November 17, 2023

Thank you for the opportunity to provide public comments on the U.S. Environmental Protection Agency's (EPA) proposed revisions to the Air Emission Reporting Requirements (AERR). The following organizations submit these comments urging EPA to swiftly strengthen and finalize these important and long-overdue updates to the AERR: Earthjustice, Environmental Defense Fund, Environmental Integrity Project, Southern Environmental Law Center, Union of Concerned Scientists, Air Alliance Houston, Alaska Community Action on Toxics, Black Appalachian Coalition, California Communities Against Toxics, Cherokee Concerned Citizens, Chesapeake Legal Alliance, Clean Air Council, Do Good, LLC, Duwamish River Community Coalition, Environmental Health Project, Food & Water Watch, FracTracker Alliance, Global Alliance for Incinerator Alternatives, Greenpeace USA, JOIN for Clean Air, Louisiana Bucket Brigade, Micah Six Eight Mission, Moms Clean Air Force, PennFuture, Plastic Pollution Coalition, Sierra Club, Texas Campaign for the Environment, The Vessel Project of Louisiana, Zero Waste Washington ("Commenters").

The proposed rules, if enacted, would help fill major gaps in knowledge about hazardous air pollution and advance EPA and State, Local, and Tribal (SLT) agencies' ability to protect the public from hazardous air pollution. As detailed herein, Commenters have identified several key parts of the proposed rule that EPA must strengthen and clarify.

INTRODUCTION

Overall, Commenters support EPA's decision to take up this rulemaking process and update the AERR to require reporting of hazardous air pollutants (HAP). If finalized, and in consideration of the opportunities to strengthen this proposal that Commenters urge EPA to make, this rule will provide more accurate information than the current system of partial voluntary reporting for some jurisdictions and less-accurate estimations for others. This emissions data serves a number of key purposes for EPA's duties under the Clean Air Act and to communities, including providing EPA with the information needed to address air toxics emissions through rulemaking, compliance, and enforcement activities and estimating potential human health risks for decision-making. Implementation of this rule will also provide more transparency of potential hazards to frontline communities who have been the most negatively affected by the historically weak reporting requirements and lack of transparency regarding emissions at polluting facilities.

As EPA recognizes in the proposed rule, improved HAP emission data is needed to meet statutory requirements of the Clean Air Act. To date, the Agency has operated with unreliable information about hazardous air pollution emissions, often to the detriment of people living downwind. EPA's failure to fill key data gaps has prolonged injustices in many communities across the country.

In finalizing this rule, EPA must always consider how the omission or undercounting of an emission estimate may underestimate hazards, risks, or potential human health impacts in resulting decision-making. Moreover, EPA must acknowledge that omitting or under-counting emissions fails to provide valuable information to those potentially impacted. In the Technical Support Document accompanying this rulemaking, EPA raises concerns about overestimating emissions. However, rather than not reporting emissions, the Agency must err on the side of providing information rather than omitting it.

When emissions are not reported, this results in the inaccurate undercalculation of risk and hazards below their real-world values. The choice to exclude emissions from reporting is not protective of human health and communities and runs counter to EPA's mission. Like listing ingredients on a food package, facilities must transparently report their air emissions to provide timely and accurate information to surrounding communities. In this age of high-speed processing and big data, this data collection and curation should not pose undue burden. It is critical that EPA apply a precautionary approach in regulating HAPs and continue to expand information access through this rulemaking and others.

As detailed below, Commenters urge EPA to move forward with this important revision to the AERR, with certain key improvements and fixes to the proposed rule:

- EPA must require the reporting of *all* emissions, including emissions from startup, shutdown, *and malfunctions*. To do so, EPA must revise the definition of "actual emissions" to include malfunctions and must adopt the additional data reporting proposed under the Malfunction Option.

- EPA must ensure that the reported data is of the highest quality and accuracy by finalizing its proposal to require the best available emissions estimation and by requiring additional quality control and the reporting of certain key data.
- EPA must strengthen the rule to include greater reporting by non-major sources. In particular, Commenters urge EPA to expand the list of industry sectors required to report and to require non-major sources to report *all* HAP emissions rather than under the proposed emissions thresholds. If EPA retains the thresholds, it must make certain key corrections to the risk-based thresholds and the default thresholds and must implement stronger requirements for revising the thresholds.
- EPA must finalize its proposal to require reporting of per- and polyfluoroalkyl substances (PFAS), with the important correction of requiring sources to report *all* PFAS emissions or at least at a level far lower than the proposed 100-pound threshold.
- EPA must also require the reporting of other air toxics not yet listed as HAPs and should implement a mechanism for adding such pollutants to the AERR.
- EPA must adopt an earlier and prompter schedule for implementation of and reporting under the revised rule, in order to ensure earlier public access to the emissions data.
- Finally, EPA must ensure prompt and broad public access to the data reported pursuant to the rule.

With the finalization of these important aspects of and changes to the proposed rule, EPA will greatly improve its ability to meet its duties under the Clean Air Act and the availability of information to frontline communities and the public overall, thereby giving them information regarding the sources and air toxics emissions affecting their communities and their health and better allowing them to and claim their rights under the Clean Air Act.

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DETAILED COMMENTS ON THE PROPOSED RULE

I. EPA MUST REQUIRE THE REPORTING OF ALL EMISSIONS ASSOCIATED WITH MALFUNCTIONS

Commenters strongly urge EPA to require the reporting of all emissions associated with malfunctions. While Commenters commend EPA for requiring the reporting of startup and shutdown emissions, the proposed rule as currently written will broadly exclude most if not all emissions of air toxics associated with malfunctions. This is a considerable shortcoming to the rule with potentially wide-ranging effects.

As discussed in greater detail below, the data gathered by the rule serves broad purposes for EPA, including providing a basis for review and management of the sources that affect the National Ambient Air Quality Standards, modeling risk to downwind populations, giving EPA the data needed to revise and strengthen air toxics standards under section 112 of the Clean Air Act, and providing EPA with the data necessary for compliance and enforcement. The rule's treatment of malfunctions will have effects on all of these purposes, as malfunctions are part of a source's actual emissions—and a significant part, typically on par with "normal" or "routine" emissions. Regardless of when they occur or whether they are regular and predictable, malfunctions affect the air quality and health of communities. It is therefore important for both EPA and communities to have full knowledge of all emissions, including those from malfunctions.

EPA must address this in the proposed rule in two ways. First, EPA must revise the definition of "actual emissions" to include malfunctions. Second, EPA should include in the final rule requirements to report the specific data it has proposed in the "Malfunction Option" for malfunctions, as well as for startup and shutdown events. This information is vital for the purposes of better understanding such events and making the data useful for various purposes. In no case should EPA use its adoption of the Malfunction Option as a reason not to include malfunctions in the definition of "actual emissions."

With these two fixes to the proposed rule, EPA will considerably improve an already important and substantial rulemaking.

A. EPA Must Revise the Proposed Definition of "Actual Emissions" to Include Emissions from All Malfunctions

In the proposed rule, EPA has put forward a proposed definition of "actual emissions" that largely excludes emissions associated with malfunctions:

> "Actual Emissions" means, for the purposes of this subpart, the emissions of a pollutant from a source that is required to be reported under this rule, determined by accounting for actual emission rates associated with normal source operation and actual or representative production rates (i.e., capacity utilization and hours of operation.) Actual emissions include emissions of a pollutant that occur during periods of startup, shutdown, and may include malfunctions. Since malfunctions

> are, by nature unpredictable and given the myriad different types of malfunctions that can occur, malfunction emissions are difficult to estimate. However, to the extent that malfunctions become a regular and predictable event, then such emissions should be quantified with regular and predictable emissions and included in actual emissions.

Revisions to the Air Emissions Reporting Requirements, 88 Fed. Reg. 54,118, 54,189 (Aug, 9, 2023). Commenters oppose this inappropriately limited definition and urge EPA to revise the definition in the final rule.

As detailed below, EPA must do so because: (1) the definition is contrary to the clear language of the Clean Air Act; (2) the definition is out of step with the purposes of the Air Emissions Reporting Requirements; (3) the definition is vague and lacks clarity; (4) EPA erroneously assumes that emissions from malfunctions must be regular and predictable to be quantifiable; and (5) emissions from malfunctions are actual emissions and constitute a significant proportion of such emissions.

1. EPA's Proposed Definition of Actual Emissions is Contrary to the Clear Language of the Clean Air Act

EPA's proposed definition of "actual emissions" is inappropriate, as its exclusion of malfunctions unless they are "regular and predictable" is contrary to the clear statutory text of the Clean Air Act. While EPA is correct that the Clean Air Act does not define the term "actual emissions," the sections in which the term appears—sections 112, 172, and 182—use broad, inclusive language in contrast to EPA's proposed definition. *See* 88 Fed. Reg. at 54,189. Given that the proposed rule "implements aspects of the Act for emissions reporting to EPA," EPA must not and cannot adopt a definition of "actual emissions" that is contrary to the clear language of the Act.

For example, section 172 of the Clean Air Act contains requirements for state implementation plans in nonattainment areas. *See* 42 U.S.C. § 7502. The term "actual emissions" appears in the subsection pertaining to the inventory of emissions that a state must submit in the plan. Specifically, "[s]uch plan provisions shall include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area . . . ." 42 U.S.C. § 7502(c)(3). While the subsection does not define the term "actual emissions" itself, it appears in the context of "a *comprehensive*, *accurate*, *current* inventory of actual emissions." *Id.* Each of these modifying adjectives makes clear that "actual emissions" should be inclusive and reflective of those emissions *actually emitted* and not a modified subset excluding categories of emissions on the basis of their regularity or predictability.

Section 182 pertains to state implementation plans in Marginal Areas and, similar to section 172 (and directly referencing it), requires that "the State shall submit a comprehensive, accurate, current inventory of actual emissions from all sources, as described in section 7502(c)(3) of this title." 42 U.S.C. § 7511a(a)(1). Again, the Act's use of the modifiers "comprehensive," "accurate," and "current" with respect to the inventory of actual emissions

indicates an inclusive meaning and contradicts a definition of "actual emissions" that excludes entire categories of emissions.

Finally, as EPA states in the proposed rule, section 112 uses the term "actual emissions" "to define the terms 'modification,' 'offsets,' and 'early reduction.'" *See* 88 Fed. Reg. at 54,189. While section 112 does not pertain directly to emissions reporting, as sections 172 and 182 do, it frames "actual emissions" in a similarly inclusive way. For example, in the context of defining "modification," section 112 provides that:

> The term "modification" means any physical change in, or change in the method of operation of, a major source which increases the actual emissions of any hazardous air pollutant emitted by such source by more than a de minimis amount or which results in the emission of any hazardous air pollutant not previously emitted by more than a de minimis amount.

42 U.S.C. § 7412(a)(5). While this section does not define "actual emissions", its uses the term along with language that indicates a broad inclusivity: e.g., "*any* hazardous air pollutant" and "more than a de minimis amount." *Id.*

This statutory language with respect to actual emissions comports with common dictionary definitions of the term "actual." For example, definitions of "actual" in the Merriam-Webster Dictionary include "existing in fact or reality," "not false or apparent," and "existing or occurring at the time."[1] Black's Law Dictionary defines "actual" to mean "Existing in fact; real."[2] In keeping with these definitions, "actual" emissions should include *all* emissions that occurred, no matter the reason. A definition that omits certain types of emissions because they are not "regular and predictable" runs counter to this plain meaning of the term.

As a further matter—and as EPA discusses in the proposed rule—EPA has previously defined "actual emissions" with respect to emissions reporting in a way that comports with the statutory language and this plain meaning, unlike the proposed definition.[3] In the 2017 guidance document "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations," EPA explicitly provides in its definition of "actual emissions" that "actual emissions should include emissions of a pollutant that occur during periods of startup, shutdown, and malfunction."[4] Given that EPA has previously defined "actual emissions" in a way that better aligns with the clear statutory text, its proposal to depart from this past definition and adopt a new and disharmonious definition in the proposed rule is even less defensible.

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[1] *See* Merriam-Webster, Actual Definition and Meaning, https://www.merriam-webster.com/dictionary/actual (Nov. 17, 2023).
[2] *See* Black's Law Dictionary, (11th ed. 2019), *accessed via* Westlaw.
[3] *See* EPA, *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations* 20 (2017) [hereinafter 2017 Guidance], *available at* https://www.epa.gov/sites/default/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf; 88 Fed. Reg. at 54,189 (discussing same).
[4] 2017 Guidance, *supra*, at 20.

EPA's explanation for why it departed from this past definition is also confusing. EPA states that "the term actual emissions in the context of the AERR must reflect the types of activities relevant to include in an emission value rather than whether that emissions value is annual or some other temporal resolution like average day." 88 Fed. Reg. at 54,189. In other words, it appears that EPA is justifying the exclusion of emissions from malfunctions—as shorter-term events—in order not to "throw off" the annual average emissions. Or as EPA puts it, the inclusion of malfunction emissions as part of the annual total "could also increase emissions across the entire year to a level not useful for model performance evaluation." *Id.* This is not an appropriate justification for omitting an entire class of emissions for several reasons.

First, a source's malfunctions are actual emissions, in that they are emitted all the same as any other type of "regular" emission and have effects on air quality and human health. Indeed, as discussed below, an average source's malfunction emissions are on par with its regular emissions. *See infra* Part I.A.5. If a source's emissions during periods of malfunction increase its annual emissions, that is entirely appropriate to include, as these emissions actually occurred.

Second, if EPA desires to use emissions data for different purposes with different temporal resolutions, it still can do so even if malfunctions are included in the total. The 2017 guidance document pertained to reporting for air quality standards with different temporal resolutions and used the same definition across the board for "actual emissions." As discussed below with respect to the "Malfunction Option," the appropriate solution is not to exclude reporting of an entire category of emissions, but rather to require the reporting of additional information on the periods of malfunction to allow EPA to use the data for different purposes.

Third, and finally, whatever reason has for defining "actual emissions" to exclude malfunctions is beside the point, given that the Clean Air Act's language is clear that actual emissions are broadly inclusive, as discussed above. Whatever EPA may be considering in the "best policy outcomes" is irrelevant because Congress set the policy as the inclusion of "actual emissions"—that is, emissions that actually occurred regardless of whether the emission was due to normal operation, startup, shutdown, malfunction, or anything else. EPA recognized this in setting the definition in the 2017 guidance document, and it must do so again in this rulemaking.

2. EPA's Proposed Definition Contradicts the Purposes of the Air Emissions Reporting Rule

In addition to the proposed definition's contradiction of clear statutory language, the definition also fails to meet the purposes that EPA has set for this rulemaking. For this reason as well, EPA must revise the definition to include emissions from malfunctions and better serve the purposes of the rule.

As EPA states in the preamble, the proposed rule includes at least three broad purposes with respect to gathering and providing information:

- "The proposed amendments in this action would *ensure that the EPA has sufficient information to identify and solve air quality and exposure problems.*"

- "The proposed amendments would also allow the EPA *to have information readily available* that the Agency needs to protect public health and perform other activities under the Clean Air Act . . . .";

- "Further, the proposed amendments would *ensure that communities have the data needed to understand significant sources of air pollution that may be impacting them*—including potent carcinogens and other highly toxic chemicals linked with a wide range of chronic and acute health problems."

See 88 Fed. Reg. at 54,121 (emphasis added). For each of these, the reporting of *all* emissions—including malfunctions—would better serve the purposes rather than excluding that information. As discussed below, emissions from malfunctions are significant—of the same magnitude as "routine" or "normal" emissions—and include the same air toxics and health effects as a source's typical emissions. In serving the purposes above, there is nothing in the characteristics of emissions associated with malfunctions that would favor excluding them.

EPA also discusses the proposed rule's purposes in fulfilling EPA's statutory duties with respect to HAPs. Specifically, "EPA's need for HAP emissions data stems from CAA requirements that the EPA is expected to meet." *Id.* at 54,122. These authorities and duties include the development and revision of air toxics emission standards under section 112; EPA's responsibilities to use emissions data to implement the NAAQS, including speciation of volatile organic compounds; EPA's responsibility to assess the risk of pollutants under its IRIS program; and EPA's compliance and enforcement efforts. For each of these, EPA has stated that the additional HAP emissions data to be reported under the proposed rule would serve EPA's efforts.

EPA has not stated how the broad *exclusion* of malfunction emissions would serve its ability to meet these duties, nor could it. For each of these, knowing the full range of HAP emissions would better serve EPA's purposes than by limiting reporting. For example, knowing the extent of emissions from malfunctions would help EPA develop stronger and more effective emissions standards under section 112; would provide EPA with a larger and more accurate pool of data for the purposes of IRIS assessments; and would give EPA key information on where it should focus its compliance and enforcement efforts.

As discussed above, EPA has stated certain reasons why emissions from malfunctions could affect "model performance evaluation," *id*. at 54,189, but EPA has not stated (a) why this one use of emissions data should trump all other uses, and (b) why wholescale *exclusion* of this emissions data from reporting is a better solution than the *inclusion* of additional data (such as the data proposed under the Malfunction Option) that would allow EPA to differentiate the malfunction emissions where necessary.

As a further matter, it is concerning that EPA would place more value on certain technical considerations that it could address on the back-end with the use of additional data than on the

important purpose of the rule to "ensure that communities have the data needed to understand significant sources of air pollution that may be impacting them and address existing environmental justice issues." *See id.* at 54,194. Communities deserve to know about the full extent of toxic emissions affecting their health and air quality, including both sources' routine emissions and emissions from malfunctions. In fact, given the large amount of air toxics that malfunctions can emit in a short amount of time, these emission events are particularly vital for communities to know.

As discussed above, EPA's proposed definition is not the agency's first attempt at defining "actual emissions" for the purposes of emissions reporting. The definition in the 2017 guidance better aligns with the purposes of this rule in its requirement that "actual emissions should include emissions of a pollutant that occur during periods of startup, shutdown, and malfunction."[5] In other words, EPA knows how to craft a definition that meets the purposes of this rule, and it should simply follow this precedent.

Given how out of step EPA's proposed definition is with the purposes of this rule, EPA must revise its proposed definition to remove the malfunction exemption and to explicitly require the inclusion of emissions associated with malfunctions.

3. EPA's Proposed Definition of Actual Emissions is Vague and Lacks Clarity

EPA is correct to include emissions that occur during periods of startup and shutdown in its proposed definition of actual emissions. However, the proposed definition—with respect to malfunctions—is vague and lacks clarity.[6] For instance, the definition fails to provide any criteria for defining "regular and predictable" malfunctions—which serves as an important prerequisite under the current definition for determining whether reporting is necessary. Without such a definition of these terms, the proposed definition is effectively a "do what you want" definition—which is unhelpful both for reporting sources and the communities that experience the sources' emissions.

The proposed definition also does not define what constitutes a "malfunction"—or, similarly, a startup or shutdown event—in the context of this important reporting rule. Again, to the extent that EPA decides to retain the malfunction exclusion in the definition—which Commenters strongly urge EPA to remove—EPA must actually define the term "malfunction," in order that reporting sources can properly determine report their emissions. Such a definition should be clear, based on plain language, and agnostic as to the cause of the event.

As a related matter, EPA's assertion that sources should not consider malfunctions to be actual emissions unless they are "regular and predictable" completely ignores the reality that companies are highly unlikely to publicly claim that their malfunctions are ever regular or

[5] 2017 Guidance, *supra*, at 20.

[6] 88 Fed. Reg. at 54,189 ("Actual emissions include emissions of a pollutant that occur during periods of startup, shutdown, and *may include malfunctions*. . . . *However, to the extent that malfunctions become a regular and predictable event, then such emissions should be quantified with regular and predictable emissions and included in actual emissions*.") (emphasis added).

predictable. No company would disclose emissions that it admits are caused by malfunctions that are regular and predictable. Doing so would expose them to civil and criminal liability, negligence claims, and other legal trouble. In the rare circumstances that sources might report such emissions, it would be unlikely that they would all interpret EPA's highly subjective language the same way. EPA should remove the "regular and predictable" malfunction language in the proposed definition and require companies to report *all* quantifiable emissions from *all* malfunctions.

4. EPA Arbitrarily and Erroneously Assumes that Emissions from Malfunctions Must be "Regular and Predictable" to be Quantifiable

EPA's proposed definition also erroneously assumes that emissions from malfunctions need to be regular and predictable to be quantifiable. Owners and operators already quantify and report emissions from malfunctions that are neither regular nor predictable. For example the Texas Commission on Environmental Quality (TCEQ) has required companies that experience emission events to report emissions to an electronic database for decades. [7] Emission events include "any upset event or unscheduled maintenance, startup, or shutdown activity, from a common cause that results in unauthorized emissions of air contaminants from one or more emissions points at a regulated entity."[8] Regularity or predictability are not a requirement for quantifying emissions from these events. Further, companies almost always claim an affirmative defense and provide written answers to standard questions required by TCEQ to argue that their upset events are anything but regular and predictable.[9] Their written justifications include statements such as:

- "the unauthorized emissions were caused by a sudden, unavoidable breakdown of equipment or process, beyond the control of the owner or operator"
- "the unauthorized emissions did not stem from any activity or event that could have been foreseen and avoided or planned for, and could not have been avoided by better operation and maintenance practices or technically feasible design consistent with good engineering practice"
- "the unauthorized emissions were not part of a frequent or recurring pattern indicative of inadequate design, operation, or maintenance."[10]

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[7] TCEQ, Reports of Air Emission Events, https://www.tceq.texas.gov/airquality/emission-events/eventreporting (last visited Nov. 17, 2023).
[8] 30 Tex. Admin. Code § 101.1 (28), *available at* https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=101&rl=1
[9] *See* TCEQ, *Affirmative Defense Questions*, *available at* https://www.tceq.texas.gov/downloads/compliance/investigations/assistance/affirmative-defense-questions.pdf.
[10] Air Emission Event Report Database, Incident tracking number 256586, https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=256586, (last visited Nov. 15, 2023).

According to an audit performed by a legislative oversight committee called the Texas Sunset Advisory Commission, in 2021 alone, 3,397 unauthorized emission events were reported, and the TCEQ granted affirmative defense claims 86.4 percent of the time.[11] These facilities included chemical plants, gas processing plants, and oil refineries that are some the largest sources of toxic and hazardous air pollution in the US and experience frequent malfunctions due, in part, to their sheer complexity, the nature of the feedstocks they use, the processes they operate, and the products they bring to market. Companies also reported malfunction emissions from non-major facilities like tank batteries and natural gas pipeline compressor stations.

Quantifying and reporting emissions from malfunctions is not limited to facilities in Texas. Under the federal Clean Air Act, new or major facilities that are required to conduct continuous monitoring of air pollution must submit semi-annual compliance reports.[12] Generally, these reports must identify the number, duration, and cause of all deviations from permit requirements and corrective actions taken.[13] Deviations are often a result of malfunctions, startups, and shutdowns. Major facilities must also submit prompt deviation reports that identify the probable cause and any corrective actions or preventative measures taken.[14] The CAA regulations leave it to the permitting authority to "define 'prompt' in relation to the degree and type of deviation likely to occur and the applicable requirements."[15] States and local agencies take different and widely varying approaches to collecting this information.

Facilities in Louisiana must report unauthorized emissions events depending on whether they create emergency conditions such that they "could reasonably be expected to endanger the health and safety of the public, cause significant adverse impact to the land, water or air environment, or cause severe damage to property."[16] Within one hour of learning that an emergency condition exists, or 24 hours of learning that the facility emitted pollution above a reportable quantity, the facility must notify the Louisiana DPS Emergency Hazardous Materials Hotline, which will notify LDEQ in turn.[17] The facility must submit a report to LDEQ one week later that identifies, among other information: The date, time, and duration of the event; the circumstances leading to the event; any air permit limits exceeded; the name and an estimated quantity of each pollutant released from the event; off-site impacts; and any remedial and preventative actions taken.[18]

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[11] Sunset Advisory Commission, Staff Report with Final Results, Texas Commission on Environmental Quality and Texas Low-Level Radioactive Waste Disposal Compact Commission, 2022–23 88th Legislature, p. 37 *available at* https://www.sunset.texas.gov/public/uploads/2023-08/Texas%20Commission%20on%20Environmental%20Quality%20Staff%20Report%20with%20Final%20Results_6-26-23.pdf, accessed by the Environmental Integrity Project on November 15, 2023.

[12] 40 CFR §§ 60.7(c); 64.9(a)(2); 70.6(a)(3)(iii)(A).

[13] 40 CFR §§ 60.7(c)(2); 64.9(a)(2); 70.6(a)(3)(iii)(A).

[14] 40 CFR §§ 64.9; 70.6(a)(3)(iii)(B). The CAA also includes industry-specific reporting requirements, including for ethylene production facilities. *See* 40 C.F.R. § 63.1110(e).

[15] 40 CFR § 70.6(a)(3)(iii)(B).

[16] La. Admin. Code Tit. 33, Pt I, §§ 3903, 3905.

[17] La. Admin. Code Tit. 33, Pt I, §§ 3915.A.1., 3917.A.

[18] La. Admin. Code Tit. 33, Pt I, § 3925.

South Carolina and Pennsylvania largely follow the federal Clean Air Act reporting requirements for major sources above.[19] In South Carolina, if a source is not subject to the federal reporting rule for major sources, it must submit a malfunction report to the Department within 24 hours if the event results in emissions for over one hour that exceed emissions from normal operation as described in the facility's permit application.[20] That facility must submit a report to the Department 30 days later that identifies, among other information: the time, duration, and location of the event; the magnitude of excess emissions; the nature and cause of excess emissions and equipment involved; and remedial and preventative steps taken.[21]

Aside from the federal reporting requirement for major sources, Pennsylvania leaves the specifics of excess emission reporting up to permit-writers. The following emissions reporting requirements appear in the permit for the Shell Polymers Monaca plant in Beaver County, Pennsylvania.[22] In addition to the annual report of emissions, Shell must report actual emissions to the Pennsylvania Department of Environmental Protection ("DEP") according to a frequency to be determined by DEP.[23] Shell must notify DEP within one hour of discovering a malfunction event that poses an imminent and substantial danger to public safety or the environment, or by the next business day of discovering any other malfunction.[24] This initial notification must include, among other information: the time, expected duration, nature, and cause of the malfunction, as well as the estimated rate of emissions. Within 30 days after the event ends, Shell must submit a report to DEP that generally identifies the same group information in the initial report, as well as: an estimate of emissions associated with the event; steps taken to limit emissions; and analyses of root cause, preventative measures, and details regarding corrective action.

5. Emissions Associated with Malfunctions are Actual Emissions

Finally, as a matter of policy and real-world implications, EPA must revise the definition of "actual emissions" because emissions associated with malfunctions are "actual" emissions. Malfunctions are substantial in magnitude and emissions rates during periods of startup,

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[19] *See* S.C. Code Ann. Regs. 61-62.70.6(a)(3)(iii)(A)–(B), 61-62.5 St 7(AA)(14)(b); 25 Pa. Code § 127.511(c); *see also* 25 Pa. Code § 121.1 (defines "deviation" subject to reporting).
[20] S.C. Code Ann. Regs. 61-62.1 § II.J.(c)–(d).
[21] *Id.*
[22] Plan Approval No. PA-04-00740C (Apr. 6, 2023), *available at* https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/4-10-23/PA-04-00740C%20-%20Apr%202023%20Ext%20Package.pdf.
[23] Shell must report emissions of the following pollutants: NOx, CO, VOC, SOx, PM10, HAP, NH3, and GHG. PA-04-00740C at 20. Under a May 2023 Administrative Consent Order entered with DEP, Shell must submit this report of actual emissions to DEP on a monthly basis. *See* Consent Order and Agreement, *In the Matter Of Shell Chem. Appalachia, LLC* at ¶ 6(c), (Pa. Dep't of Env't. Prot., May 24, 2023), *available at* https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/5-24-23/Shell_Chem_Appalachia-Monaca_final_COA_05-24-23_Redacted.pdf.
[24] Plan Approval No. PA-04-00740C, *supra*, at 20.

shutdown, and malfunction (SSM) commonly exceed emissions rates during routine operation. Additionally, SSM emissions are sometimes attributed to severe weather events, suggesting that these emissions could increase with climate change.

An analysis by the Environmental Integrity Project (EIP) identified examples of facilities in Texas that reported substantially higher HAP emissions from SSM events than "routine" emissions, according to the state's 2017 detailed emission inventory. (Appendix A). The examples identified are not the only facilities that experienced higher emissions from SSM events than those from routine operations in 2017, and the list of plants and pollutants differ by year. These emissions occurred and were quantified and reported. To exclude some emissions from malfunctions or other upset events from the definition of "actual emissions" ignores the lived reality that many communities endure each day. To these communities, these emissions have a big real life impact, even more so than lower rates of emissions during routine operations. Risks of exposure to dangerous levels of emissions cause households to shelter in place, close schools and highways, and put local responders and workers in harm's way on a seemingly regular basis.

Recent analyses by the Environmental Defense Fund (EDF) underscore the necessity of reporting malfunction emissions by demonstrating the inconsistency in current reporting practices and the large amount of HAP emissions that result from SSM events. In Texas, facilities are required to divulge reportable quantities of emissions resulting from unplanned air releases and planned startup, shut-down, and maintenance activities via the State of Texas Environmental Electronic Reporting System (STEERS). These emission reports are publicly accessible through Texas's air emission event report database. EDF compared STEERS-reported SSM emissions to EPA's Toxic Release Inventory (TRI) one-time emissions, which in theory should contain the same upset event information aggregated to an annual amount. However, reporting of SSM emissions is inconsistent in these two data sources (Appendix B, Figure 2), meaning that SSM emissions may be an even more significant contributor to total facility emissions than indicated by either of these estimates.

EDF also compared SSM emissions data reported to STEERS and routine stack and fugitive emissions reported to EPA's TRI (Appendix B, Figure 1) and found that annual reported SSM emissions of six chemicals subject to proposed fenceline monitoring requirements in EPA's Hazardous Organic National Emissions Standards for Hazardous Air Pollutants (HON) rulemaking were of similar magnitude to reported routine emissions, for some facilities. For example, from 2016 to 2021, the Indorama Facility in Port Neches, Texas, reported over 132,000 lbs. of SSM-related ethylene oxide emissions, compared with approximately 130,000 lbs. of stack ethylene oxide emissions and approximately 47,000 lbs. of fugitive ethylene oxide emissions. As noted in the current proposal, EPA experienced difficultly collecting data on ethylene oxide emissions, thereby "delaying a response that could have more quickly addressed public health concern." 88 Fed. Reg. at 54137. In addition to EDF's analysis of SSM emissions from facilities subject to the proposed HON rulemaking, several studies in the scientific literature support the notion that total SSM emissions are substantial across industry sectors and

pollutants.[25] SSM emissions events occur frequently, with over 3,300 incidents reported in Texas in 2020 alone.

While the frequent nature of SSM emissions poses long-term health risks, elevated emissions rates during periods of SSM can pose short-term health risks. For example, a study of SSM emissions at Texas petroleum refineries found that SSM emissions rates of criteria pollutants were up to 1,210 times greater than average routine emissions rates.[26] Researchers have conservatively estimated that 35 additional deaths per year are attributable to excess emissions in Texas alone.[27] In monetary terms, health damages amount to an estimated $150 million annually from SSM emissions of PM2.5 in Texas alone.[28]

Further, SSM emissions are sometimes spurred by extreme weather, which can cause simultaneous SSM events at multiple nearby facilities. A recent study by Nikolaos Zirogiannis and colleagues drew upon the Texas air emission event reporting database and analyzed operator comments describing the cause of each SSM emissions event.[29] The authors found that at least 10 percent of all comment text referenced weather-related accidents, suggesting that weather is a common cause of SSM emissions. Moreover, extreme weather events such as hurricanes can be associated with spikes in already-high SSM emission levels. For example, an EDF analysis found that in August 2017—when Hurricane Harvey struck Texas—HON, P&R I, and P&R II facilities reported over 4.8 million lbs. of total SSM emissions, or more than 13 times the monthly average SSM emissions from the same facilities. Similarly, when Winter Storm Uri hit Texas in February 2021, these facilities reported over 2.7 million lbs. of SSM emissions, or over 7.5 times the mean monthly average. As the frequency and intensity of extreme weather increases with climate change,[30] SSM emissions are likely to become more common and are thus important to track through the AERR.

Notably, many facilities subject to the STEERS reporting requirements revised their reported SSM emissions figures downwards in their final reports. EDF analyzed STEERS data for all excess air emissions during and after Hurricane Harvey, between August 23, 2017, and

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[25] Britney J. McCoy et al., *How big is big? How often is often? Characterizing Texas petroleum refining upset air emissions*, 44 Atmospheric Env't 4230 (2010), *available at* https://doi.org/10.1016/j.atmosenv.2010.07.008; Alex J. Hollingsworth et al., *The health consequences of excess emissions: Evidence from Texas*, 108 J. Envtl. Econ. & Mgmt. 102449 (2021), *available at*. https://doi.org/10.1016/j.jeem.2021.102449; Nikolaos Zirogiannis et al., *Understanding Excess Emissions from Industrial Facilities: Evidence from Texas*, 52 Envtl. Sci. & Techn. 2482 (2018), *available at* https://doi.org/10.1021/acs.est.7b04887.

[26] *See* Britney J. McCoy et al., *How big is big? How often is often? Characterizing Texas petroleum refining upset air emissions*, *supra*.

[27] Alex J. Hollingsworth et al., *The health consequences of excess emissions: Evidence from Texas*, *supra*.

[28] Nikolaos Zirogiannis et al., *Understanding Excess Emissions from Industrial Facilities: Evidence from Texas*, *supra*.

[29] *Id.*

[30] *See* Peter Stott, *How climate change affects extreme weather events*, 352 *Science* 1517 (2016), *available at* https://doi.org/10.1126/science.aaf7271.

October 25, 2017. Researchers compared STEERS reports covering this same time span at two points in time: October of 2017 and June of 2018. The two reports were compared to quantify changes in reporting over the nine-month period. The comparison revealed significant differences in the reporting of the amounts of pollution released. In the October 2017 reports of emissions during industrial startup, shutdown, and malfunction events, approximately 3 million pounds of pollution were reported. A review of the June 2018 reports covering the same emissions showed approximately two million pounds of pollution were reported—an overall reduction of one million pounds of pollution (or 33 percent). These revised reports illustrate the need for standardized reporting requirements that contain reporting requirements for malfunction events.

For these reasons, EPA must revise the proposed definition of "actual emissions" in order that it does not inappropriately exclude emissions associated with malfunctions. As it currently stands, the proposed definition is contrary to the clear statutory text of the Clean Air Act, contrary to the purposes of the rule, and improperly vague and unclear. The proposed definition also incorrectly assumes that malfunctions must be regular and predictable to be quantified and ignores the reality that malfunctions are actual emissions, on par with or exceeding so-called "normal" or "routine" emissions. A revised emission that properly includes malfunctions would far better meet each of these factors. EPA must make this change in the final rule.

B. EPA Should Finalize and Improve the Reporting Requirements in the Proposed "Malfunction Option"

Commenters urge EPA to include the separate "malfunction option" in the final AERR rule, with fair but commonsense modifications. The separate reporting requirement should also include emissions from startup and shutdown events. EPA should also require owners, operators, and/or states to report initial emission estimates from individual startup, shutdown, and malfunction events within 24 hours of when they occur and submit a final estimate two weeks after the end of the event. The reported emissions should also be made available to the public as it is reported, not only with the official release of the National Emission Inventory.

Emission rates during startups, shutdowns, and malfunctions are often higher in the short term than during "routine" operations. Reporting them separately, event by event, with additional information will help inform the public about short-term health risks of large pollution releases, while also providing EPA with data it needs to reduce uncertainty in air modeling, assess risks, and develop regulations necessary to address the threats of toxic air pollution.

The proposed rule indicates that owners/operators would need to report the "approximate date of occurrence, the approximate number of days of the occurrence (if more than one day), and the estimated emissions associated with each malfunction." 88 Fed. Reg. at 54,190. The additional data would be more reliable and useful to EPA and the public if EPA required owners, operators, and/or states to report the actual date of occurrence, the actual start and end time of the occurrence, standardized chemical names and common identifiers (like CAS numbers), the cause of the malfunction, actions taken to end the malfunction or control emissions, and the methodology and/or calculations used to estimate or measure emissions. To the extent that a malfunction occurs but emissions are impossible or dangerous to estimate, owners/operators

should be required to report required fields for malfunctions and provide a reasonable justification for why emissions could not be quantified. EPA should also clarify what a reasonable justification entails. For each calendar year, emissions from separately reported malfunctions, startups, and shutdowns should be added to emissions from routine operations to obtain an annual total.

In recent years, EPA has promulgated and proposed several rules and entered consent decrees that require some owners/operators to monitor for benzene and other HAPs at the fenceline. Those monitoring requirements require regulated entities to conduct root-cause analyses and reduce emissions when fenceline concentrations exceed a certain threshold over background. These fenceline monitoring requirements aim to reduce off-site impacts from malfunctions, leaks, and other emission sources at a facility. Requiring separate malfunction, startup, and shutdown reporting is needed to effectively enforce fenceline monitoring requirements (i.e., to evaluate reported results), determine where else they might be needed, and evaluate if they are working. Fenceline monitoring, in turn, could also help assess the accuracy of reported emissions.

II. EPA MUST ENSURE THE HIGHEST QUALITY AND ACCURACY OF REPORTED DATA

Data collected pursuant this rulemaking need to be reliable and accurate to be useful. They also need context. Commenters support EPA's proposal to require reporting entities to use the best available emission estimation method and report additional variables that make the data usable and interoperable. Commenters urge EPA to finalize its clarification that emission data collected under this rule, including the related variables that make it usable and interoperable, are not subject to confidentiality claims. With a greater number of reporting entities, EPA needs to build in sense and quality checks into the data collection process, which could reduce burdens on reporting entities and SLT's reporting on businesses' behalf.

A. EPA Should Finalize Its Proposal to Use the Best Available Emission Estimation Method

As a general matter, Commenters support EPA's proposal to require point sources to use the best available emission estimation method. Currently, the proposed rule specifies that the requirement applies to reporting "annual emissions," and commenters request that EPA clarify what it means by "annual" emissions in this context.[31] This requirement should extend to actual emissions, especially if they are to also include startups, shutdowns, malfunctions consistent with the definition used in the final rule.

EPA's proposed approach—requiring the best available estimation method in combination with EPA's proposal to require electronic source test reporting, to use facility-specific source tests where available, indicate methodologies used, and to develop estimation methods where they do not currently exist-- could help improve emission estimates as well as the often-outdated emission factors used to estimate emissions of many HAPs.

[31] *See* 88 Fed. Reg. at 54,169.

If sources must use emission factors, EPA should require these sources to list the factors used and the uncertainty rating those factors have been given by EPA, wherever possible. The Environmental Integrity Project outlined many of the pitfalls of relying on emission factors used to estimate HAP emissions in a 2018 report, titled "Toxic Shell Game."[32] In the report, EIP called attention to the fact that emission factors rarely reflect upset or startup and shutdown emissions, and only represent the average facility. The report also detailed that EPA has admitted that its data regarding emissions of specific HAPs is so limited and of such poor quality that it cannot be used even to estimate emissions based on industry-wide averages. In some cases, the data are so limited that EPA cannot even rate their relative accuracy.

Commenters urge EPA to also consider that source tests representing "typical" operations can be conducted to reflect "optimal" operations, which can be far from what represents "actual" operations. Separate malfunction, startup, and shutdown emission reporting could help shine light on these situations.

In the case of malfunctions, startups, and shutdowns, the best estimation method may be engineering calculations. These should be viewed as acceptable, assuming that companies also provide the underlying assumptions and equations used to estimate emissions and that they use assumptions and data relevant to the process or event that occurred, since emission factors are not designed to reflect emissions during these events.

B. EPA Should Require Sources to Report Certain Temporal and Geographic Data

Commenters also urge EPA to require sources to provide certain specific temporal and geographic data along with their emissions data. Commenters flag in particular three specific kinds of sources: medium- and heavy-duty trucks (MHDs), oil and gas facilities, and certain under-characterized sources.

First, with respect to MHD trucks and their activities, the Federal Highway Administration's Highway Performance Monitoring System (HPMS) dataset collection requires that Annual Average Daily Traffic (AADT) measurements be made on highest volume roads in the U.S. but falls short on other roadways. AADT is counted and reported for MDVs and HDVs on all interstate highways and national highway system links. The lowest volume roads in rural areas or minor residential streets (characterized as roadway functional classification 7 which counts as 15 percent of total U.S. traffic volume) are not included in this dataset at all and therefore not included in air quality modeling. This becomes important when facilities that attract heavy-duty trucks are built in residential neighborhoods. The communities do not have a way of knowing what the real traffic volume is in their communities, and air quality modeling will not accurately estimate the resulting pollution concentrations.

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[32] Eric Schaeffer & Keene Kelderman, EIP, *Toxic Shell Game: EPA Reversal Opens Door to More Hazardous Air Pollution* (Mar. 2018), *available at* https://environmentalintegrity.org/wp-content/uploads/2017/02/Toxic-Shell-Game.pdf.

For roadway classifications that fall between the large highways, and these small residential roads, the requirements are only that enough traffic volume information be provided to allow for heavy-duty and medium-duty truck traffic estimates at the STATE level. This lack of details provides no spatial variability to compare emissions at the neighborhood level. Requirements need to be improved to allow for roadway segment truck traffic estimations for all links.

Second, Commenters urge EPA to require better spatial and temporal descriptions of oil and gas facilities and activities. Air quality modeling of oil and gas production facilities relies on activity data that is poorly characterized in time and space. While the number of individual occurrences of an activity (e.g.: drilling, flowback, etc) is counted, the exact time and location of each occurrence is considered unknown, and so emissions are averaged by area, and spread across a year, thus artificially reducing the modeled impact on communities. To more accurately represent the impacts of oil and gas production activities on downwind and nearby communities, activity data needs to be collected with details that allow for specific time and space allocation.

Finally, certain area sources are typically under-characterized. These include dry cleaners, waste management, and cement batch plants. EPA must require such sources to report their emissions with greater geographic granularity. These relatively smaller emissions sources can be very important to the neighborhoods in which they reside and therefore should be represented as point sources instead of area sources. In modeling and analyses activities, the latter artificially dilutes the emissions of individual facilities across counties and prevents the identification of local hotspots.

C. EPA Should Conduct Sense Checks and Quality Control of Data

In its proposed rule, EPA acknowledges that "The EPA is responsible for quality assurance of emissions data collected from owners/operators." 88 Fed. Reg. 54,170. In addition to ensuring that emission data are based on the best available estimation methods, EPA should also conduct additional quality assurance and quality control to ensure that all collected data are accurate and reliable. To the extent it can, EPA should build these checks into the CAERS system it proposes to make available to SLTs and owners and operators.

For example, EPA should:

- Check that emission reports to different systems at state and federal level are consistent (e.g. TRI one-time emission agree with upsets reported to the states, TRI info matches sector reports, etc.)
- Monitor and improve the quality and accuracy of reported air emissions data to ensure data integrity and actionability across state and federal systems. For example, commenters suggest looking across similar source types of unreported or significantly underreported emissions for specific pollutants as a way of finding potential errors in the data. As discussed above, EDF's found that data reported to the Texas STEERS database and data reported to EPA's Toxic Inventory Release (TRI) database are inconsistent. For example, in 2019 the Total Petrochemicals and Refining Facility in Port Arthur, TX reported over 5,000 lbs.

of unplanned benzene releases to the STEERS, but did not report any "one-time" emissions to the TRI.

- Check the accuracy of location information.
- Check the accuracy of NAICS codes. EPA proposes a definition of point sources that relies, in part, on a given facility's primary NAICS code. 88 Fed. Reg. at 54,136. Commenters ask EPA to ensure the accuracy and reliability of NAICS codes given inconsistencies and irregularities in self-reported NAICS categorizations. In the context of the Safer Communities by Chemical Accident Prevention / Clean Air Act Rule 112(r) rulemaking, EDF found that several risk management program facilities have diverging NAICS and secondary NAICS codes.[33]
- Check that a common unique identifier is included and consistent across emissions datasets including NEI, TRI, and state inventories. The FRSID used in the Enforcement and Compliance History Online has been problematic as there are often more than one per facility. The EIS ID may provide a solution. EPA needs to ensure that whatever is the best unique ID, that it is readily available in all emissions and compliance datasets. Regularly verify and/or audit 5-10 percent of the reports using measurements, site visits, and surveys, and perhaps a larger share of sources in overburdened communities. Emissions estimates have been found to be both underestimated and overestimated. EPA needs to ensure that both potential underreporting and overreporting is verified in these audits.

D. EPA Should Finalize Its Proposal to Require Sources to Report Release Coordinates, Point Source Control Data, Permit Identifiers, Classifications, and Regulations That Apply to a Facility

Commenters support EPA's proposal to expand reporting fields to include valuable data that will aid regulators and the public, especially affected communities, in efforts to understand facility and pollution impacts in their locales and participate in regulatory processes to address those impacts.

First, commenters urge EPA to finalize its proposal to require reporting of release coordinates, including stack and fugitive emissions release points. Since EPA estimates HAP risks using the AERMOD modeling system, precise emissions data are needed to accurately characterize risks to the public. As EPA acknowledges in the proposal, "using default facility locations for all release points [instead of accurate release point locations] provides lower quality results than when models use more detailed data." 88 Fed. Reg. at 54,142. For facilities with small footprints, using the facility location may provide a usable approximation for release points, however, since modeled air pollution concentrations tend to decrease with distance from a release point, this approach could result in lower fenceline modeled estimates for facilities with larger footprints. Since facilities with larger footprints may also have higher emissions than

[33] Dylan Baddour, *Shell Refinery Unit in Deer Park had History of Malfunctions Before Fire*, Texas Tribune, May 10, 2023, *available at* https://www.texastribune.org/2023/05/10/texas-shell-refinery-fire-problems-tceq/.

smaller footprint facilities, it may result in significant underestimates of cancer and non-cancer risks in communities most burdened by emissions. This approach may also help overcome the challenge of owners/operators providing mailing addresses rather than the source of emissions when providing facility locations. Finally, these data can provide regulators with additional insight on sources of fugitive emissions that may require additional standards to reduce risk.

To further illustrate the importance of requiring reporting release coordinates, a recent analysis by EDF shows that locational data provided by facilities is often inconsistent and can be inaccurate or unverifiable. EDF analyzed 360 facilities in the FRS EZ Query Database subject to Clean Air Act Section 112(r): Accidental Release Prevention / Risk Management Plan Rule requirements and found that 41 had no latitudinal or longitudinal data, 29 had either no information included on how these locations were identified and were reported as "unknown" or as a "zip-code centroid." In 19 cases, the location (regardless of its accuracy) referenced a part of the plant that is not associated with the location of chemical hazards, referring instead to an administrative building, the plant entrance, a corner of the land parcel, or simply reported as "NA." These facilities and associated hazards can be located on sprawling, multi-acre land parcels. Therefore, it is imperative that EPA finalize its proposal to require reporting of release coordinates to ensure reporting accuracy and develop a method for locational data verification.

Commenters also urge EPA to require facilities to report Title V permit identifiers and the regulations that apply to a facility. The siloed approach to regulating air toxics has made it incredibly difficult for communities, advocates, and even regulators to understand which facilities are covered by which regulatory programs and to join reported actual emissions with allowable emissions to screen for compliance. For example, in September 2023, the Union of Concerned Scientists submitted a Freedom of Information Act request to EPA requesting National Emissions Inventory data, organized by source category, for facilities that emit ethylene oxide (EtO). In its response to this request, EPA stated that "the Agency does not have a document comprising an EtO facility listing with National Emission Inventory (NEI) data as described in your request." This is particularly concerning, and indicative of the convoluted and unclear process for HAPs regulation.

On the ground, the lack of information about the web of regulations that cover a facility has made it incredibly difficult for the public to engage in rulemaking and permitting processes that affect their lives. For example, consider the two Union Carbide facilities operating less than five miles apart in Institute and South Charleston, West Virginia. Both facilities emit EtO, yet they are regulated under different source categories, therefore a rulemaking updating NESHAPs for one facility may not apply to the other.[34] For communities that may be exposed to ethylene oxide emissions from both facilities, this difference has major implications for their ability to

[34] *See* Darya Minovi, UCS, *Invisible Threat, Inequitable Impact: Communities Impacted by Cancer-Causing Ethylene Oxide Pollution* (Feb. 2023), *available at* https://www.ucsusa.org/resources/invisible-threat-inequitable-impact; Deidre Nelms, Coming Clean, *EPA's actions to lower cancer-causing emissions are leaving too many communities behind* (Aug. 14, 2023), *available at* https://comingcleaninc.org/latest-news/in-the-news/epas-actions-to-lower-cancer-causing-emissions-are-leaving-too-many-communities-behind (last visited Nov. 17, 2023).

weigh in on future regulatory processes. There are no public EPA or other federal databases where this information is provided outside of documents accompanying a specific rulemaking or on an ad hoc basis, which are not easily accessible. It is therefore imperative that EPA add an additional required field designating the Facility Source Category Code and require reporting of regulatory applicability of each unit or process for which federally enforceable regulations apply.

Furthermore, it is important to extend these requirements to Title V permit identifiers. The Title V permitting program allows for additional transparency, accountability, and compliance and provides important opportunities for public input. Similarly, requiring permit identifiers would help the public and especially affected communities access relevant information about the facilities with Title V public comment processes, and more easily obtain HAP emissions data that can inform those processes. Commenters urge EPA to at least require reporting of Title V permit numbers and support the inclusion of a permit identifier for easier joining or association with applicable rules and requirements and to associate or join permit allowable emission rates with reported actual emissions.

Similarly, EPA should also require point sources that have non-major or general permits that authorize emissions to list the permit identifiers and permit classifications that authorize emissions from operations, including new source review permits and other permits that are incorporated by reference in an operating permit. Synthetic minor sources, for example, have the potential to emit over major source thresholds but have accepted lower limits in their permits. Identifying these synthetic minor facilities is often difficult and including their permit numbers and an indication that they are synthetic minor sources would greatly improve transparency. This is especially important in light of EPA's rulemaking allowing sources to reclassify from major source status to area source status. The public, EPA, and States need to be able to identify which facilities are subject to synthetic minor HAP limits so that they can ensure that emissions from these facilities remain below the major source threshold. In practice, it can be extremely difficult to determine what sources in a given community are subject to synthetic minor HAP limits. For instance, advocates recently inquired with the Georgia Environmental Protection Division as to whether the agency maintained a database of synthetic minor HAP permits and whether the agency could generate a list of such sources. The agency responded that its database did not specifically track which sources have synthetic minor HAP limits and that they are unable to generate a list of such sources.

Finally, commenters urge EPA to finalize its proposal to require owners and operators to report specific control paths, apportionment, and assignment to help provide more consistent and clear information on the control measures employed at the facility. Together with the inclusion of permit identifiers, this will make it easier to discern if air pollution control equipment is required in a facility's air permit when a facility applies a control efficiency or any metric of the portion of a pollutant emitted that is destroyed or retained by the control technology in their estimates of reported actual emissions. If a facility is allowed to take credit for air pollution control in their reported actual emissions, this control technology must be required in the permit.

Requiring owners/operators and States to report the aforementioned fields of data will enhance EPA, state, and local agencies' ability to regulate HAP-emitting facilities and minimize

risks to public health, and importantly, provide affected communities with critical information about the sources of emissions and opportunities to engage in regulatory processes that may directly impact their wellbeing.

E. EPA Must Finalize its Proposal that "Emissions Data" are Not Subject to Confidential Treatment

Commenters strongly urge EPA to finalize its proposal to clarify that the parties required to report under this action cannot decline to report "emissions data," as defined, on the basis that the data are entitled to confidential treatment. Furthermore, commenters support EPA's clarification that the information collected through the AERR is not subject to confidential treatment.

The "confidential treatment" claim has been used widely and inappropriately by owners/operators under many environmental statutes to evade accountability for emissions, making it difficult for regulators to ensure compliance and the public to understand the risks to their health and safety. EPA and State agencies have also improperly invoked "confidential business information" to withhold emissions data that would benefit the public. Oftentimes, there is no mechanism to report why the information was withheld, which may incentivize owners/operators to use this reporting loophole. This claim is completely counter to EPA's mission of protecting public health and does not hold facilities accountable for the health-harming emissions they produce and agencies accountable for regulating those emissions. If a facility is emitting a pollutant that impacts communities adjacent to that facility, then the effects and risks are not confidential, and the information cannot be treated as such.

For example, in EPA's regulation of Commercial Sterilization facilities that emit ethylene oxide (EtO), the agency issued two Information Collection Requests of regulated facilities. Advocacy organizations like the Union of Concerned Scientists and Earthjustice, as well as many community groups in areas affected by EtO emissions reviewed the completed forms provided by the owners/operators and found that much of the critical data was omitted based on confidential business information claims. For example, Sterilization Services of Virginia, a sterilization facility in Henrico, Virginia that EPA determined contributed to elevated and excess cancer risks to surrounding communities[35] failed to disclose information as simple as the amount of ethylene oxide used and emitted at the facility.[36] Particularly considering the Government Accountability Office's (GAO) findings that the EPA failed to adequately communicate the public health risks of ethylene oxide exposure to affected communities,[37] having information as

[35] EPA, Henrico, Virginia (Sterilization Services of Virginia), https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/forms/henrico-virginia-sterilization-services-virginia (last visited Nov. 17, 2023).
[36] U.S. Environmental Protection Agency. Response to 2021 Section 114 ICR from Sterilization Services of Virginia in Richmond, VA. April 13, 2023, a*vailable at* https://www.regulations.gov/document/EPA-HQ-OAR-2019-0178-0246.
[37] U.S. Government Accountability Office, *Management Alert: Prompt Action Needed to Inform Residents Living Near Ethylene Oxide-Emitting Facilities About Health Concerns and Actions to*

basic as the amount of stack and fugitive emissions emitted at a facility must be made available to the public. It is unacceptable for facilities emitting cancer-causing chemicals, as well as other pollutants with non-cancer health effects, to withhold information that has direct implications for people's health.

The Toxic Substances Control Act (TSCA) provides an instructive example of misuse of confidential business information claims and the costs to public health. Under TSCA, companies have been able to evade reporting of critical information that the law intended to provide, such as chemical production amounts, discharge amounts, and names of untested chemicals. Oftentimes, advocates have had to pursue litigation to reveal this information, which proved incredibly valuable with chemicals like PFAS. After safety testing data was disclosed by companies like DuPont, EPA and State agencies initiated processes to study, better regulate, and phase out the use of PFAS chemicals.[38] Yet by the time this information came to light, PFAS chemicals were already in widespread use and even today, we are still unraveling the damaging legacy of exposure to these toxic chemicals. The GAO has also asserted that EPA's historic failure to challenge companies' assertions of confidentiality under TSCA "limit EPA's ability to expand public access to this information" and "potentially limits the effectiveness of […] environmental risk programs."[39]

For these reasons, Commenters urge EPA to ensure that HAP emissions data, as well as EIS, CAERS, and CEDRI reporting data for contact information are not considered confidential and be made available to the public without further notice to the submitter. Particularly for the people and communities that live, work, attend school, and play near the facilities regulated by this rulemaking, it is imperative that this information be publicly available and accessible, and that owners/operators report emissions transparently and are held accountable for violations.

III. EPA MUST STRENGTHEN THE RULE TO INCLUDE GREATER REPORTING OF EMISSIONS FROM NON-MAJOR SOURCES

Non-major sources can be significant sources of toxic air pollutants that are extremely hazardous at low levels, and EPA's current risk estimates are inherently flawed. Instead of relying on the vulnerable and flawed risk-based thresholds for some HAPs and the 10 ton per year major source threshold for others, Commenters urge EPA to require all non-major sources to report all HAPs they emit. The Agency should also expand its list of industry groups required to report.

Address Those Concerns (Mar. 31, 2020), *available at* https://www.epaoig.gov/sites/default/files/2020-03/documents/_epaoig_20200331-20-n-0128_0.pdf.

[38] Environmental Working Group, Off the Books II: More Secret Chemicals. May 9, 2016, *available at* https://www.ewg.org/research/books-ii-more-secret-chemicals.

[39] U.S. Government Accountability Office. Chemical Regulation: Observations on the Toxic Substances Control Act Implementation. June 13, 2013, *available at* https://www.gao.gov/assets/gao-13-696t.pdf.

A. EPA Must Expand Its List of Industry Groups Required to Report

One way in which EPA has set a threshold for non-major sources is with respect to their industry sector. However, Commenters believe that EPA has been too restrictive in limiting reporting to the sectors put forward in the proposed rule. The current list of sectors omits a number of industry sectors that have significant emissions of air toxics and present substantial health risks to surrounding communities.

For these reasons, Commenters highlight two particular categories of industry categories that EPA must add to its list—warehousing and distribution facilities and certain agricultural sources—and urge EPA to include in the final rule provisions for regularly revising the list to include additional industry sectors.

1. Warehousing and Distribution Facilities

Warehousing and distribution facilities can prompt hundreds, if not thousands, of trucks to start, stop, and idle each day, sometimes in immediate proximity to residential communities, schools, parks and other places where people may be exposed to truck pollution.[40] Trucks emit dangerous pollution at start up, while idling, and while hoteling. Lack of detail regarding warehouse location and activity results in poor characterization of the pollution burden and health risk for immediate neighbors of warehouses.

EPA should require the coordinates of warehouses to be reported, along with how many truck visits they generate per day, age of trucks, how long trucks are idling or hoteling, and emissions from on-site activities such as yard hostlers, diesel generators, and refrigeration units.

2. Agricultural Sources

EPA should also include certain agricultural sources that have been categorically excluded from reporting requirements, despite evidence that they are effectively point sources that emit large quantities of air pollution that disproportionately impacts human health and the environment in rural communities. Concentrated animal feeding operations should be required to estimate and report emissions of criteria, criteria precursor, and toxic air pollutants through the national emission inventory. They are large sources of ammonia, hydrogen sulfide, particulate matter, greenhouse gases, volatile organic compounds, and other pollutants. At a minimum, EPA should revise the emission factors used to estimate ammonia emissions from large, confined poultry operations, which do not represent how chickens, turkeys, and laying hens are grown in the United States.[41]

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[40] *See* Aileen Nowlan, EDF, *Making the Invisible Visible: Shining a Light on Warehouse Truck Air Pollution* 8–10 (Apr. 2023), *available at* https://globalcleanair.org/wp-content/blogs.dir/95/files/2023/04/EDF-Proximity-Mapping-2023.pdf (last visited Nov. 17, 2023).

[41] Abel Russ, EIP, *Poultry Industry Pollution in the Chesapeake Bay: Ammonia Air Emissions and Nitrogen Load Higher than EPA Estimates* (Apr. 22, 2020), *available at* https://environmentalintegrity.org/wp-content/uploads/2020/04/EIP-Poultry-Report.pdf.

3. EPA Must Also Include Provisions for Including Additional Industry Categories and Processes

EPA should also require new processes to report as they emerge, without requiring communities to wait and guess and hope for future rule-making. Facilities of concern include waste to energy, biomass to energy, plastics recycling, manufacturing, and incineration, hydrogen, and carbon capture utilization and storage. EPA should require the release coordinates of these facilities, along with detailed reporting as requested in other comments and petitions.

B. EPA Must Revise the Proposed Rule to Require Greater Reporting by Non-Major Sources

Commenters urge EPA to require non-major source HAP emitters to report *all* HAP they emit, regardless of whether the sources emit over EPA's proposed reporting thresholds—as discussed in further detail below. Requiring reporting by major and non-major sources would better serve the purposes of the rule and would better address human health hazards and risk than the proposed approach.

First, requiring all sources of HAP emissions to report would better serve the rule's purpose of gathering and providing information and data on emissions, including to "ensure that communities have the data needed to understand significant sources of air pollution that may be impacting them and address existing environmental justice issues." *See* 88 Fed. Reg. at 54,194; *see also id.* at 54,121 (describing purposes of rule). Communities—and especially environmental justice communities—have a right to know about all HAP emissions in the vicinity of where they live, work, recreate, or go to school, even if the levels do not exceed the thresholds that EPA has proposed here.

Second, the distinction between major and non-major sources is not necessarily reflective of potential human health hazards and risks to frontline communities, as emissions of more toxic HAPs do not have to exceed 10 tons to be of potential concern. This threshold is exceedingly high for pollutants that can cause cancer, asthma, and other dangerous health impacts at very low levels, and in combination with other pollutants; Many HAPs are emitted by sources in fractions of a ton per year and pose major health risks even in those small quantities.[42] Those health impacts do not vary based on whether a source is designated as major or non-major. Additionally,

[42] *See, e.g.*, Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements, 63 Fed. Reg. 17,838, 17,847–48 Tbl. 1 (Apr. 10, 1998) (showing that total aggregate emissions by entire industrial categories for several HAPS amount to pounds, grams, or fractions of a gram); National Emission Standards for Hazardous Air Pollutants; Compliance Extensions for Early Reductions, 57 Fed. Reg. 61,970, 61,980–81 (Dec. 29, 1992) (noting that "high risks of adverse public effects may be associated with exposure to small quantities" of "high risk" air toxics); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Sewage Sludge Incineration Units, 75 Fed. Reg. 63,260, 63,275–76 (Oct. 14, 2010); A Legislative History of the Clean Air Act Amendments of 1990 at 3344–3346 (Cong. Res. Serv. 1993) (discussing risks from persistent HAPs).

non-major sources can be large sources of emissions from startup, shutdowns, and malfunctions, which have not been included in previous emission inventories.

Third, even if it were appropriate to limit reporting by non-major sources to situations where the emissions of a single HAP resulted in exceedance of a risk-based threshold—again, Commenters do not think it is appropriate to limit reporting on this basis—EPA's proposed approach fails to take into account how any individual non-major source may be contributing to aggregate and cumulative risk in a community. For example, in areas where many non-major sources are clustered together, often with major sources, their total emissions can add up and significantly contribute to cumulative health risks. In addition, even if there is only one emissions source in a community, people could have other exposure pathways, such as water, consumer products, or in their workplace, in addition to exposures from ambient air. Considering risk from ambient air alone would understate this real-world risk. Moreover, limiting reporting by non-major sources based on whether a single HAP is emitted over the risk-based threshold ignores that emissions from multiple HAPs could result in cumulative risk even if the risk from any individual HAP might not exceed a risk-based threshold.

The importance of requiring non-major HAP emitters to report all HAP they emit is underscored by concerns regarding Trump Administration's 2020 reclassification rule, which allows major sources to reclassify as non-major sources (i.e. area sources)--absent MACT-stringent standards, sources that reclassify are allowed to legally increase their emissions up to the 10 ton per year threshold for a single pollutant or 25 tons per year in the aggregate.[43] Although the current administration is proposing safeguards to limit an increase in emissions from reclassified sources, it does not guarantee protective monitoring, recordkeeping, and reporting requirements for reclassified sources.[44]

Requiring non-major sources to report all HAP they emit, from a practical standpoint, also makes more sense than EPA's proposed risk-based threshold approach. It sets clear expectations for toxic air pollution sources, would cost government agencies less to implement, and would help EPA better achieve the goals it set to accomplish with this rulemaking. It also

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[43] *See* Petition for Reconsideration of "Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act," 85 Fed. Reg. 73,594 (Nov. 19, 2020) Docket ID No. EPA-HQ-OAR-2019-0282 and for Withdrawal of the Guidance Memorandum titled "Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act (Jan. 25, 2019) (OAQPS-2020-415) (Jan. 18, 2021), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0282-0659; Comments of Earthjustice, Environmental Defense Fund, Environmental Integrity Project, Natural Resources Defense Council, and Sierra Club, Re: Proposed Rule: Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act (July 26, 2019), Docket No. EPA-HQ-OAR-2019-0282, (Sep. 24, 2019), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2019-0282-0341.

[44] *See* Review of Final Rule Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act, 88 Fed. Reg. 66,336 (Sept. 27, 2023); *see also* Comments of Sierra Club et al. on Proposed Rule: Review of Final Rule Reclassification of Major Sources as Area Sources under the Clean Air Act, Docket ID No. EPA-HQ-OAR-2023-0330-0081 (Nov. 13. 2023), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2023-0330-0081.

would not pose an additional burden on non-major sources compared to what this proposed rule would require, if implemented effectively. To demonstrate that they meet or do not meet reporting thresholds, non-major sources will have to measure or estimate their emissions. Since this rule requires all point sources to do the math, so to speak, EPA should require them all to also write down their answers. Sources could spend more time and effort demonstrating to EPA that they don't meet reporting requirements than what would be required if they just simply reported in the first place. EPA and state agencies, on the other hand, could focus enforcement and data management efforts on non-reporting and reporting entities, rather than those who skirt the fine print around reporting thresholds or challenge the underlying assumptions used to estimate risk.

1. If EPA Does Not Require All Non-Major Sources to Report, It Must Correct the Proposed Risk-Based Thresholds in Several Key Ways

As discussed immediately above, Commenters urge EPA to require reporting of all HAP emissions from both major and non-major sources, as there are many ways that risk-based thresholds could result in under-reporting or erroneous non-reporting. This is especially true and concerning for any pollutant or chemical that is persistent in the environment or in human bodies, since the proposed risk-based thresholds are only protective of inhalation exposures and not multi-pathway hazards, exposures, or risks.

If EPA chooses to move forward with risk-based thresholds for non-major reporting sources, we urge EPA to institute a schedule of updates and to automatically update the thresholds when any toxicity value changes. Also, if EPA moves forward with risk-based thresholds, and since EPA is using a 100m buffer for the estimation of the risk thresholds, they must prove or require that all reporting facilities have a 100m set-back from any area zoned residential or accessible to the public. Finally, should EPA move forward with this plan, the risk-based thresholds of any grouped pollutants, as grouped in the HAPs list (e.g. Polycyclic organic matter as all polycyclic aromatic hydrocarbons), must be based on the additive risk of the group and not individual chemicals to maintain protection against combined exposures or interactions.

Concerns about EPA's reliance on a single year of data from the National Emissions Inventory to estimate risk have been raised in previous comments and are incorporated by reference here.[45] Emissions are often under-reported by regulated entities, and startup, shutdown,

[45] Comments of EIP, Sierra Club, and California Communities Against Toxics, Re: New Source Performance Standards for the Synthetic Organic Chemical Manufacturing Industry and National Emission Standards for Hazardous Air Pollutants for the Synthetic Organic Chemical Manufacturing Industry and Group I & II Polymers and Resins Industry, 88 Fed. Reg. 25,080 (Apr. 25, 2023), Docket No. EPA-HQ-OAR-2022-0730, at 7-10 (July 7, 2023), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2022-0730-0169; Comments Air Alliance Houston et al., Re: New Source Performance Standards for the Synthetic Organic Chemical Manufacturing Industry and National Emission Standards for Hazardous Air Pollutants for the Synthetic Organic Chemical Manufacturing Industry and Group I & II Polymers and Resins Industry, 88 Fed. Reg. 25,080 (Apr. 25, 2023), Docket No. EPA-HQ-OAR-2022-0730, at 10-13

and malfunction emissions have been systematically excluded from the emissions used to model risk. For example, 2017 NEI data from facilities in Texas do not include emissions from what Texas calls startup, shutdown, and maintenance and emission events. Those events released a total of 1,448,000 pounds of hazardous air pollutants -- none of which were included in the 2017 NEI and EPA's risk estimates used to calculate non-major source thresholds for this rulemaking.

EPA also acknowledges in the proposed rule that improving spatial information about emission points could improve risk estimates, and that risk estimates made using imprecise location information – like the risk estimates used to establish many minor-source thresholds in this rule—results in uncertain risk estimates. While Commenters strongly support EPA's proposal to collect more detailed location information about emission sources, EPA failed to account for its current lack of detailed information in its own threshold calculations that rely on risk estimates. Commenters recommend that EPA take a more protective approach and require all non-major sources that emit HAP to report any amount of any HAP they emit, instead of setting individual thresholds that vary from pollutant to pollutant.

2. EPA Must Not Use the 10 Ton Per Year Threshold as the Default Threshold for Certain Pollutants, Such as 1-Bromopropane

As discussed above, it is Commenters' position that EPA should require the proposed rule to require all sources, major and non-major, to report their air toxics emissions without the proposed emissions reporting thresholds. In the instance that EPA determines to leave thresholds in place, EPA must not proceed with its proposal to assign the 10 ton per year major source threshold as the default threshold for certain categories of pollutants, such as those that lack an EPA-calculated reference concentration or unit risk estimate. *See* 88 Fed. Reg. at 54,137.

First, as a matter of logic and governance, using the 10 ton per year major source threshold does not make sense for the purposes of setting a reporting threshold for non-major sources. Because the sources to which the threshold is applicable are not major sources, EPA has effectively chosen a threshold that will never require reporting of the pollutants. This is a reporting *exemption*, not a threshold.

Second, his effective exemption is also a particular problem because a number of the pollutants subject to this default threshold are potent toxics. These include toluene, xylenes, ethyl benzene, methanol, styrene, cyanide compounds, and the newly listed HAP 1-bromopropane. In total, 91 pollutants of the 239 pollutants and categories in Table 1B—or approximately 38 percent—will be subject to the proposed default threshold of 10 tons per year.[46]

A case in point is 1-bromopropane. In 2022, EPA added 1-bromopropane to the list of HAPs under section 112 of the Clean Air Act—the first such addition ever in the history of EPA's

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(July 7, 2023), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2022-0730-0175.

[46] *See* 88 Fed. Reg. at 54,213–16; *see also* Tables 1B, 1D, 2A-C of the Proposed Rule in Excel Format, *available at* https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr.

air toxics program.[47] As EPA has recognized, 1-bromopropane is a toxic pollutant with adverse health effects, including reproductive and developmental effects, neurological effects, and a reasonable likelihood as a human carcinogen.[48] Yet EPA has proposed to assign the highest possible threshold available, thereby ensuring that no non-major source will report emissions. This makes no sense.

As an initial matter, it is not clear why EPA has assigned the default 10 ton per year threshold to 1-bromopropane. In the preamble, EPA states that there are "five situations" in which EPA did not assign a typical risk-based threshold. 88 Fed. Reg. at 54,136. The situation for which EPA has decided to assign the 10 ton per year threshold is "for all remaining pollutants without an URE or RfC." *Id.* at 54,137. But this is not the case for 1-bromopropane. EPA has established an inhalation unit risk for 1-bromopropane: 1×10^{-6} per $\mu g/m^3$, or 6×10^{-3} per ppm.[49] Furthermore, the California Office of Environmental Health Hazard Assessment's (OEHHA) recently adopted 3.7×10^{-6} per $\mu g/m^3$ as the inhalation unit risk factor for 1-bromopropane.[50] Both of these are significant risk factors, roughly comparable to benzene's inhalation unit risk of 2.2×10^{-6} per $\mu g/m^3$.[51] By comparison, EPA has proposed a reporting threshold for benzene of 0.096 tons per year, or about *104 times smaller* than the proposed threshold for 1-bromopropane.[52]

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[47] *See* Clean Air Act Section 112 List of Hazardous Air Pollutant: Amendments to the List of Hazardous Air Pollutants (HAP), 87 Fed. Reg. 393 (Jan. 5, 2022).

[48] *See* Notice of Granting Petitions to Add n-Propyl Bromide to the List of Hazardous Air Pollutants, 82 Fed. Reg. 2354, 2360–61 (Jan. 9, 2017) (summarizing EPA's conclusions regarding 1-bromopropane's likely carcinogenicity, neurotoxicity, and reproductive/developmental effects); *see also* National Toxicology Program, Report on Carcinogens: 1-Bromopropane (15th Ed. 2021) ("1-Bromopropane is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity from studies in experimental animals."), *available at* https://ntp.niehs.nih.gov/sites/default/files/ntp/roc/content/profiles/bromopropane.pdf.

[49] *See* EPA, *Risk Evaluation for 1-Bromopropane (n-Propyl Bromide), CASRN: 106-94-5*, at 226 Tbl. 3-6 (Aug. 2020), *available at* https://www.epa.gov/sites/default/files/2020-08/documents/risk_evaluation_for_1-bromopropane_n-propyl_bromide.pdf; *see also* EPA, *Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities*, *Version 1.0*, at 54, 62 (Jan. 2022), *available at* https://www.epa.gov/system/files/documents/2022-01/draft-fenceline-report_sacc.pdf.

[50] *See* OEHHA, Notice of Adoption of Cancer Inhalation Unit Risk and Slope Factors for 1-Bromopropane, https://oehha.ca.gov/air/crnr/notice-adoption-cancer-inhalation-unit-risk-and-slope-factors-1-bromopropane (last visited Nov. 17, 2023); *see also* OEHHA, *Air Toxics Hot Spots Program, 1-Bromopropane, Cancer Inhalation Unit Risk Factor* (Dec. 2022), *available at* https://oehha.ca.gov/media/downloads/crnr/1-bpcanceriur120622.pdf.

[51] *See* EPA IRIS, Benzene CASRN 71-43-2 | DTXSID3039242, https://cfpub.epa.gov/ncea/iris2/chemicallanding.cfm?substance_nmbr=276 (last visited Nov. 17, 2023).

[52] *See* 88 Fed. Reg. at 54,213.

As EPA states in the technical support document for the proposed rule, "EPA generally use[s] UREs from EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available."[53] 1-bromopropane therefore does not meet the "second situation" described in the preamble, and EPA must therefore revise its decision to assign the default threshold on this basis.

One possibility for why EPA assigned the default threshold—albeit one that EPA does not mention let alone explain in the preamble—is that EPA does not have emissions data on 1-bromopropane from the National Emissions Inventory. In the Technical Support Document, EPA describes an additional "situation" that it did not carry over to five situations in the preamble:

> Another default approach was necessary for pollutants with UREs or an RfC but that have not been included in the 2017 NEI. Since EPA did not have data for these pollutants, the modeling and risk results used to set thresholds for other pollutants were not available. Without modeling and risk results to use to define a threshold, the EPA is also proposing the 10 tons/year threshold based on the major source threshold for a single pollutant.[54]

The Technical Support Document does not explain which pollutants EPA would assign the default 10 ton per year threshold under this reasoning, nor does Table 1B or anywhere else. It is likely true that there is not information on 1-bromopropane in the 2017 National Emissions Inventory, given that EPA only finalized its decision to list 1-bromopropane as a HAP in 2022, following a decade-long rulemaking process after receiving petitions for addition in 2010 and 2011.[55] If this is EPA's reasoning for assigning the default threshold to 1-bromopropane, it must say so and not leave it to members of the public to guess. Again, because of this failure to explain its decision here, EPA must remove this threshold in the final rule.

Another way in which EPA's proposed 10 ton per year threshold for 1-bromopropane is unreasonable is in its effect. As noted above, the use of the major source threshold is a reporting exemption: no non-major source will report emissions of 1-bromopropane to EPA. This is a particularly concerning and puzzling choice for EPA to make at a moment when it appears to claim in its Technical Support Document that a reason for assigning the default threshold is a

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[53] *See* EPA, Technical Support Document: Revisions to the Air Emissions Reporting Requirements (Proposed Rule) 13 n.9 (July 2023) [hereinafter AERR Technical Support Document], *available at* https://www.regulations.gov/document/EPA-HQ-OAR-2004-0489-0097.

[54] *Id.* at 13.

[55] *See* 1-Bromopropane (1–BP); Revision to Toxic Substances Control Act (TSCA) Risk Determination; Notice of Availability, 87 Fed. Reg. 77,603 (Dec. 19, 2022); Comments of Comments of Sierra Club, California Communities Against Toxics, Gasp, and the Kentucky Environmental Foundation in Support of EPA's Notice Proposing to Grant the Petitions to Add n-Propyl Bromide (also known as 1-Bromopropane) to the List of Hazardous Air Pollutants Under Clean Air Act § 112(b), at 26 (Sept. 29, 2017) (discussing EPA's "long overdue" listing action), *available at* https://www.regulations.gov/comment/EPA-HQ-OAR-2014-0471-0077.

lack of emissions data: "Since EPA did not have data for these pollutants, the modeling and risk results used to set thresholds for other pollutants were not available."[56] If EPA needs emissions data, why would it assign a reporting threshold that guarantees no reporting by non-major sources?

This is all the more confusing in light of the fact that EPA seems to be keenly aware of the need for information in moments such as these. In the same reporting threshold section of the preamble, the agency expressly discusses the drawbacks of "collect[ing] data ad-hoc" on ethylene oxide emissions, which "took additional time, delaying a response that could have more quickly addressed public health concerns." *See* 88 Fed. Reg. at 54,137. Even more to the point, EPA has proposed the "PFAS Option" in which it will set the reporting threshold for PFAS at 0.05 tons per year—or 100 pounds—given that "current evidence suggests a need for better identification and characterization of PFAS point source emissions in air" and that "TRI does not provide the level of detail needed for detailed modeling for PFAS." *Id.* at 54,148. EPA has proposed this thoughtful, information-gathering approach for PFAS in spite of the fact—unlike 1-bromopropane—PFAS are not currently a listed HAP.

If EPA can recognize the need for and benefit of gathering emissions data on harmful pollutants such as ethylene oxide and PFAS where knowledge is developing, then it should do the same for 1-bromopropane. Commenters continue to assert that EPA should not set these risk-based thresholds for non-major sources, but rather should require reporting by major and non-major sources alike. But in the instance that EPA does retain thresholds in the final rule, then it must drop the 10 ton per year threshold and require reporting of *any amount* of 1-bromopropane—and indeed for any of the pollutants where the agency needs emissions data or information to develop or revise risk factors.

3. If EPA Retains Thresholds in the Final Rule, EPA Must Implement a Better Mechanism for Revising Thresholds for Pollutants as Additional Information Becomes Available

EPA has proposed that it will continually add new thresholds as it develops or revises reference concentrations and unit risk estimates. *See* 88 Fed. Reg. at 54,137. In the instance that EPA retains thresholds in the final rule—and keeping in mind the significant issues Commenters have raised above with respect to EPA's thresholds—Commenters support a provision to require continuing and prompt revision of those thresholds. However, as currently proposed, EPA has not put forward deadlines or a time-specific schedule for when it would make such decisions on revising thresholds. If thresholds remain in the final rule, then EPA must also include more specific requirements for revision of such thresholds, including deadlines by which EPA must make the revisions.

IV. EPA MUST INCLUDE REPORTING OF PFAS IN THE FINAL RULE

In the proposed rule, EPA seeks comment on whether to require PFAS reporting, with a reporting threshold of 100 pounds (0.05 tpy) for non-major sources. *See* 88 Fed. Reg. at 54,148.

[56] AERR Technical Support Document, *supra*, at 13.

In support of this proposed reporting, EPA notes that "[w]hile PFAS are not currently HAP, current evidence suggests a need for better identification and characterization of PFAS point source emissions in air." *Id.* Commenters fully agree that it is important to know more about air emissions of PFAS and therefore support EPA's proposal to require PFAS reporting on this basis. Commenters urge EPA to require sources to report PFAS emissions in the final rule.

As Commenters have stated above with respect to 1-bromopropane and other pollutants to which EPA has assigned the default 10 ton per year threshold, the proposed rule represents an opportunity to develop EPA's knowledge as to the emissions, toxicity, and risk of pollutants, and EPA should employ this information-forward approach where data is lacking or not well characterized. Furthermore, as Commenters provide below, EPA should follow this proposed approach for PFAS in requiring the reporting of other non-listed toxic pollutants.

While Commenters strongly support requiring the reporting of PFAS emissions, we are concerned with the proposal to make this reporting subject to the 100-pound reporting threshold for non-major sources. This threshold is too high considering the likely dangers of PFAS, including high persistence and mobility in environmental media. For example, as EPA states in the proposed rule:

> PFAS compounds are persistent in the environment and accumulate in body tissues, and exposure to PFAS compounds has been linked to adverse health effects in humans and animals. There are currently no health benchmarks for the inhalation toxicity of PFAS compounds; however, PFAS point source emissions into air can deposit PFAS into nearby drinking water bodies.

Id. Given that uncertainties remain regarding PFAS health benchmarks for inhalation toxicity—though EPA has set toxicity values for many PFAS, and PFAS as a class are expected to be toxic at low levels of exposure—and regarding the extent of PFAS emissions, Commenters urge EPA to require reporting of *any* PFAS emissions. In other words, Commenters urge EPA to set no threshold for non-major sources—or at least to set a threshold lower than 100 pounds.

In other reporting programs, EPA has previously lowered the reporting threshold for toxic chemicals with characteristics that make them especially concerning, such as the chemicals' persistence, bioaccumulation tendencies, and toxicity (PBT). In 1999, EPA established varying lowered thresholds for chemicals of special concern "based on the chemicals' potential to persist and bioaccumulate in the environment."[57] EPA lowered the threshold for PBT chemicals of special concern to 100 pounds, except for a subset of PBT chemicals, for which EPA set the threshold at ten pounds, and dioxins and dioxin-like compounds, for which EPA set the threshold at 0.1 grams.[58]

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[57] *See* Persistent Bioaccumulative Toxic (PBT) Chemicals; Lowering of Reporting Thresholds for Certain PBT Chemicals; Addition of Certain PBT Chemicals; Community Right-to-Know Toxic Chemical Reporting, 64 Fed. Reg. 58,666, 58,672 (Oct. 29, 1999).
[58] *Id.*

EPA has full authority to set the PFAS thresholds according to its best judgment and discretion here. While the National Defense Authorization Act set the TRI-reporting threshold for individual PFAS compounds at 100 pounds, this has no effect on EPA's decision in this rulemaking.[59] First, the threshold applies only to the TRI and does not constrain EPA's authority with respect to the AERR. Second, the NDAA only set the 100-pound threshold as a temporary measure, while requiring EPA to reassess the 100-pound threshold within five years of PFAS's listing under the TRI and to revise the threshold as warranted.[60]

Previous practice confirms EPA's broad authority to lower reporting thresholds based on specific hazards associated with a category or class of chemicals. Like the subset of chemicals of special concern that are subject to threshold level of under 100 pounds, PFAS share hazard characteristics that warrant a similarly low threshold. As EPA notes, there is ample evidence showing that this class of chemicals are highly persistent and mobile in environmental media, especially in groundwater, and that many are toxic at low levels.

For these reasons, Commenters urge EPA to finalize PFAS reporting requirements and to require reporting of *all* emissions of PFAS by major and non-major sources in recognition of the particularly hazardous characteristics of PFAS and the need to gather data for better characterization and understanding of the full range of emissions. In the alternative, if EPA decides to retain a threshold, it must use its discretion to set the threshold at an amount well below 100 pounds.

V. EPA SHOULD REQUIRE REPORTING OF ADDITIONAL NON-LISTED HAPS

Based on EPA's proposal to require PFAS reporting, it appears that EPA recognizes the importance of requiring the reporting of certain toxic pollutants that are not yet included in the list of HAPs. Commenters urge EPA to take this step further by requiring the reporting of additional pollutants not yet listed as HAPs and by providing a mechanism to update the list of reported pollutants in future reporting years.

EPA's list of 188 hazardous air pollutants is only a small portion of those toxic air pollutants actually emitted. In the over 30 years of the list's existence, EPA has added *only one* HAP to this list—1-bromopropane, as discussed above with respect to reporting thresholds—while the number of chemicals manufactured has increased to the point where there are 86,718 known chemicals on EPA's Toxic Substances Control Act Chemical Substance Inventory.[61] At a minimum, Commenters urge EPA to broaden the list of toxics required to report to include and be consistent with all TRI chemicals. However, to truly protect human health and address risks posed by toxic air pollution, in addition to PFAS and listed HAPs, EPA should broaden reporting requirements to include all chemicals where data do not prove safety to human health and also where data are not available or are insufficient to determine safety to human health. Broadening

[59] *See* 15 U.S.C. §§ 8921(b)(2)(B), (c)(2)(B).
[60] *Id.*
[61] EPA, TSCA Chemical Substance Inventory, How to Access the TSCA Inventory ("The Inventory contains 86,718 chemicals, of which 42,242 are active."), *available at* https://www.epa.gov/tsca-inventory/how-access-tsca-inventory (last visited Nov. 17, 2023).

reporting requirements to include all toxic air pollutants and air pollutants with uncertain or unknown toxicity would provide much needed information that could inform more effective health protections.

VI. EPA MUST ADOPT AN EARLIER IMPLEMENTATION SCHEDULE

Commenters urge EPA to adopt an earlier reporting implementation schedule than is proposed. The current timeline will not swiftly improve the public's ability to access current information about emissions in their communities. Currently, the NEI is made available to the public on a triennial basis, which can at times provide little utility for advocates and community members that are attempting to understand current or recent conditions in their locales. As EPA states in the rulemaking, "The current timing of the NEI is unsatisfactory to EPA, some States, and the public. […] Decisions and environmental improvements based on new information are delayed when the data take longer to produce." Under the proposed structure, this three-year lag in reporting would persist, with most facilities not being required to report HAPs until 2027 or 2028 for the 2026 calendar year, and the data not made available to the public until 2029. This proposed timeline would maintain the three-year delay from the reporting year to when the information is made public and is in direct opposition with EPA's assertion that the current timing lag is "unsatisfactory."

As EPA states in the rulemaking, the infrastructure exists under other emissions inventory programs, like the TRI and GHGRP, whereby emissions data are collected within months after the conclusion of the reporting year and made available to the public within roughly six months. EPA provides that reporting to States will not be required until 2026 to allow those agencies to develop their reporting infrastructure, however, many States already have this infrastructure in place and publish their emissions inventories sooner than EPA makes the data available to the public.[62] As shown on the Environmental Integrity Project's State Air Emissions Inventory tracker, most States have published emissions inventories for 2021 and 2022, illustrating that they are largely capable of making these data available in a timely manner.[63] We urge EPA to shorten the phase-in timeline for this rulemaking. Furthermore, if additional time is needed for States to develop this infrastructure, rather than delaying reporting, EPA could instead require owners/operators to report directly to the EPA, which is already an option under consideration in this rulemaking. Furthermore, owners/operators already collect and have access to the data required under this proposal, and with reporting infrastructure in place to comply with other emissions inventory reporting deadlines, should be able to submit these data on a faster timeline.

For these reasons, Commenters urge EPA to adopt the earliest proposed deadline changes and ensure that reporting deadlines for owners/operators and States are coordinated and not staggered to avoid inaccurate reporting in the first year. As discussed below, Commenters also urge EPA to make the data available to the public as it is reported, rather than keeping it behind closed doors while EPA finalizes its annual emission inventory.

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[62] *See* EIP, Air Pollution Emissions Inventories, https://environmentalintegrity.org/state-emissions-inventory/ (last visited Nov. 17, 2023).
[63] *Id.*

VII. EPA MUST ENSURE PROMPT AND BROAD PUBLIC ACCESS TO THE REPORTED DATA

Commenters urge EPA to make the reported data for HAPs, other toxics, and criteria air pollutants and precursors available to the public as soon as it is reported, even if EPA is still compiling the "official" NEI. Timely public access to this information—which can and does impact short and long-term health outcomes and the everyday decisions made to protect health—is essential. It's also possible with current and widely-used modern information technology.

At a minimum and as a starting point, EPA's proposed rule should include a provision that commits EPA to providing read-only public access to the CAERS system, and that EPA will create training materials tailored to inform the public, in addition to states and reporting entities. Data should be browsable, sortable, and explorable at the facility level online, and ultimately, it should be made available through a well-designed and maintained application programming interface (API) with robust publicly available documentation. Commenters expect that EPA needs the data to be available this way for internal use, and the public should also have access to these functionalities. EPA should also develop an online mapping and visualization tool that allows the public to understand sources and types of emissions located near them. Such a tool is essential for promoting transparency and informed public participation, consistent with the Office of Management and Budget's Open Government Directive.[64]

More broadly, Commenters urge EPA to take the opportunity with this long-overdue rulemaking to adopt FAIR and CARE data principles in how it collects, stores, documents, and shares data.[65] Applying frameworks such as FAIR and CARE to publishing regulatory data can help ensure this critical information is transparent, accessible to the public, and actionable. The FAIR principles assert that data should be findable, accessible, interoperable, and reusable, i.e., they should be easy to find and discover, accessible to both people and computers, able to work with other systems and tools, and available for reuse in new projects. It is also important to note that these principles were not created to respond to concerns around how data management and publication can impact communities. As such, frameworks like the CARE Principles for Indigenous Data Governance complement FAIR by emphasizing possible benefits and harms to communities, and provide a starting point for developing governance and community consent mechanisms to enable benefit and prevent harm.

In the context of protecting public health and the environment, implementing the FAIR and CARE principles can help:

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[64] *See* Memorandum from Peter R. Orszag, OMB, to Heads of Executive Departments and Agencies, Re: Open Government Directive (Dec. 8, 2009), *available at* https://obamawhitehouse.archives.gov/open/documents/open-government-directive.

[65] *See* GO FAIR, FAIR Principles, https://www.go-fair.org/fair-principles/ (last visited Nov. 17, 2023); Global Indigenous Data Alliance, CARE Principles for Indigenous Data Governance, https://www.gida-global.org/care (last visited Nov. 17, 2023).

- Facilitate more accurate and effective analysis of pollution sources and risks, and better inform decision-making on strategies for mitigation and control.
- Facilitate more effective collaboration and knowledge-sharing among stakeholders that are subject to complex and evolving regulatory frameworks.
- Ensure that the data produced by many public and private entities are standardized and easily combined for use in more comprehensive and robust analyses.
- Facilitate greater accountability and public participation in decision-making.
- Eliminate or minimize manual processes, saving time and resources, reducing data reporting errors, and facilitating faster and more accurate data sharing with regulatory agencies and affected communities.

CONCLUSION

Commenters thank EPA for consideration of these comments. For any questions regarding these comments or further updates on this rulemaking, please contact Adam Kron (akron@earthjustice.org) or Courtney Bernhardt (cbernhardt@environmentalintegrity.org).

Appendix A

Hazardous Air Pollutant emissions from Texas facilities where maintainence, start-up, shutdown (MSS), and upset emissions were greater than routine emissions in 2017								
Site	RN	EIS IDs	Contaminant	2017 NEI Emissions (lbs)	Texas 2017 DEI Emissions (lbs)			
					Routine	MSS Events	Upset Emissions	MSS and Upset Emssions
GALENA PARK TERMINAL	RN102180486	3737711, 4169011, 4981511, 6533811, 6641911	Toluene	34,380	27,561	185,432	2	185,433
PORT ARTHUR REFINERY	RN100209451	4863111, 5650711	Hexane	21,216	14,275	16,191	17	16,208
GALENA PARK TERMINAL	RN102180486	3737711, 4169011, 4981511, 6533811, 6641911	Benzene	16,661	9,074	12,116	1	12,118
GALENA PARK TERMINAL	RN102180486	3737711, 4169011, 4981511, 6533811, 6641911	Xylene	13,964	8,287	216,009	1	216,010
BASF BEAUMONT	RN100634922	5654311	Methanol	9,015	9,022	172,013	-	172,013
CORPUS CHRISTI PLANT	RN100221662	5862111	1,3-Butadiene	8,500	8,500	9,620	720	10,340
VALERO PARTNERS HOUSTON	RN109290692	17907111	Hexane	5,931	5,931	16,775	-	16,775
SALT CREEK FIELD GAS PLANT	RN101222602	6379311	Hexane	4,488	4,488	6,520	2,420	8,940
VALERO PARTNERS HOUSTON	RN109290692	17907111	Toluene	4,228	4,228	6,377	-	6,377
NOLTEX LA PORTE EVOH PLANT	RN101049518	6536411	Vinyl Acetate	4,224	4,224	12,856	240	13,096
CORPUS CHRISTI FACILITY	RN106620438	17735911	Hexane	2,778	2,778	3,676	-	3,676
GALENA PARK TERMINAL	RN102180486	3737711, 4169011, 4981511, 6533811, 6641911	Ethyl Benzene	2,698	1,895	50,163	1	50,164
SOUR LAKE	RN100224088	6536511	Hexane	2,473	2,473	24,509	-	24,509
CLEAR LAKE OPERATIONS	RN104150123	13411211	Ethyl Acrylate	2,070	2,070	2,191	1,913	4,104
BIG LAKE TREATING FACILITY	RN100217686	7552311	Hexane	1,369	1,369	4,911	-	4,911
BASF BEAUMONT	RN100634922	5654311	Xylene	1,192	1,193	12,214	-	12,214
CEDAR BAYOU PLANT	RN103919817	4056411	Naphthalene	1,190	1,190	1,308	-	1,308
PVA PLANT	RN106155849	17112011	Acetaldehyde	1,120	1,120	2,022	-	2,022
WEST KARNES CENTRAL FACILITY	RN107202731	17907511	Hexane	1,098	1,098	1,296	-	1,296
CROSBY FACILITY	RN101613511	4167811	Maleic Anhydride	1,008	-	756	-	756
DRIVER GAS PLANT	RN100215102	7924511	Benzene	853	853	2,704	-	2,704
PORT NECHES OPERATIONS C4 PLANT	RN104964267	13407911	Hexane	741	741	8,539	-	8,539
WEST KARNES CENTRAL FACILITY	RN107202731	17907511	Xylene	534	534	1,353	-	1,353
CORPUS CHRISTI FACILITY	RN106620438	17735911	Toluene	440	440	1,213	-	1,213
CORPUS CHRISTI FACILITY	RN106620438	17735911	Xylene	417	417	1,027	-	1,027
DRIVER GAS PLANT	RN100215102	7924511	Toluene	396	396	2,026	-	2,026
BOYD COMPRESSOR STATION	RN100213701	5779111	Hexane	372	372	1,446	-	1,446
BENEDUM GAS PLANT	RN102516937	5747511, 5748711	Hexane	330	254	5,186	-	5,186
BENEDUM GAS PLANT	RN100223890	5747511, 5748711	Hexane	330	76	2,255	-	2,255
SAND HILLS PLANT	RN102552031	6492411	Hexane	317	317	1,112	-	1,112
SOUR LAKE	RN100224088	6536511	Benzene	316	316	4,427	-	4,427
LANXESS CORP BAYTOWN	RN104680871	9175811	Maleic Anhydride	308	308	720	-	720
SOUR LAKE	RN100224088	6536511	Xylene	270	270	10,336	-	10,336
JAMES LAKE GAS PLANT	RN107088759	17088511	Hexane	247	-	2,543	28	2,571
PARKS COMPRESSOR STATION	RN105856306	17906811	Toluene	128	-	2,206	-	2,206
PORT ARTHUR CHEMICALS	RN100217389	6430411	Naphthalene	81	81	10,576	-	10,576
PARKS COMPRESSOR STATION	RN105856306	17906811	Benzene	60	60	2,454	-	2,454
DRIVER GAS PLANT	RN100215102	7924511	Hexane	59	59	25,661	-	25,661
PARKS COMPRESSOR STATION	RN105856306	17906811	Xylene	58	-	552	-	552
CLEAR LAKE OPERATIONS	RN104150123	13411211	Vinyl Acetate	11	11	594	-	594
			Total	**145,870**	**116,282**	**843,884**	**5,342**	**849,226**

I. EPA Must Ensure that All Emissions from Malfunctions are Reported

Section A, Subsection 5 Supplemental Analyses

Methodology for comparison of emissions reported to STEERS and TRI:

In Texas, facilities are required to report reportable quantities of emissions resulting from unplanned emissions events and planned startup, shutdown, and maintenance activities via the State of Texas Environmental Electronic Reporting System (STEERS). These emission reports are publicly accessible through Texas's air emission event report database,[1] which we accessed to obtain estimated emission quantities for events beginning between 2016 and 2021. We also obtained emissions reported to EPA's Toxics Release Inventory (TRI) by downloading TRI Basic data files[2] for each year from 2016 to 2021.

We further refined both datasets to include only emissions of any of 6 priority chemicals (1,3-butadiene, benzene, chloroprene, ethylene oxide, ethylene dichloride, or vinyl chloride), reported in pounds, from Texas facilities in the Synthetic Organic Chemical Manufacturing Industry (SOCMI, commonly referred to as HON) or the Group I & II Polymers and Resins Industries (P&R I and P&R II). For emissions reported to the STEERS, we only included final reports to avoid double-counting. We used the Facility Registry System State CSV Download File[3] to obtain a state-level facility identifier (RN number) for each Facility Registry identifier corresponding to a facility within the HON, P&R I, or P&R II source categories. Where RN numbers were missing from this file, we identified them manually using TCEQ's Regulated Entity Search.[4] We used the facility registry identifier for each facility in order to join the TRI data with data from the Texas air emissions event report database.

To compare routine emissions with start-up, shut-down, and malfunction (SSM) emissions, we summed each facility's reported emissions across years to obtain a 6-year total for TRI fugitive emissions (field number 48, "5.1 – FUGITIVE AIR"), TRI stack emissions (field number 49, "5.2 – STACK AIR"), and SSM emissions reported via the STEERS. Figure 1 shows the distribution of non-zero 6-year emission totals in pounds for each chemical and emissions type, and demonstrates that SSM emissions can be comparable in magnitude to routine stack and fugitive emissions.

[1] https://www2.tceq.texas.gov/oce/eer/
[2] https://www.epa.gov/toxics-release-inventory-tri-program/tri-basic-data-files-calendar-years-1987-present
[3] https://www.epa.gov/frs/epa-state-combined-csv-download-files
[4] https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch

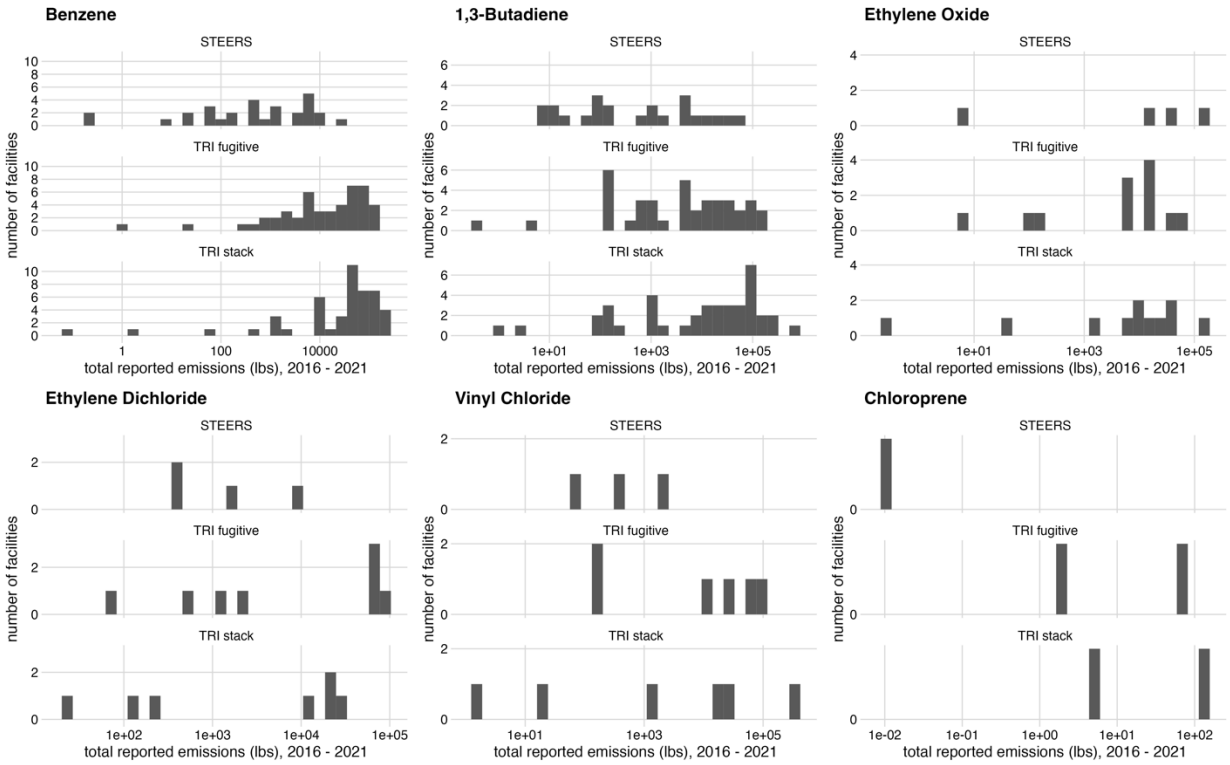

Figure 1 Distributions of total emissions reported to the STEERS and total routine emissions (i.e., stack and fugitive air emissions) reported to the TRI by HON, P&RI, and/or P&RII facilities in Texas from 2016-2021. Emissions distributions are shown for each chemical (plot panels) and each reporting category (rows within panels).

To evaluate consistency in SSM reporting, we compared emissions reported via the STEERS with "one-time" releases reported to the TRI. The latter quantity is reported in section 8.8 of the TRI reporting form and is defined as: "the total quantity of the EPCRA Section 313 chemical disposed of or released directly into the environment or sent off-site for recycling, energy recovery, treatment, or disposal during the reporting year due to any of the following events: (1) remedial actions; (2) catastrophic events such as earthquakes, fires, or floods; or (3) other one-time events not associated with normal or routine production processes." (TRI Reporting Forms and Instructions).[5] We summed each facility's STEERS-reported emissions within each year from 2016 to 2021 in order to obtain total annual emissions and facilitate comparison with annual TRI data. Results (Figure 2) demonstrate that consistency between TRI one-time releases and STEERS-reported releases is rare. In many instances, facilities report sizeable emissions to one reporting program but do not report those emissions to the other.

[5] https://guideme.epa.gov/ords/guideme_ext/f?p=guideme:rfi:544292939306::::rfi:4_8_8

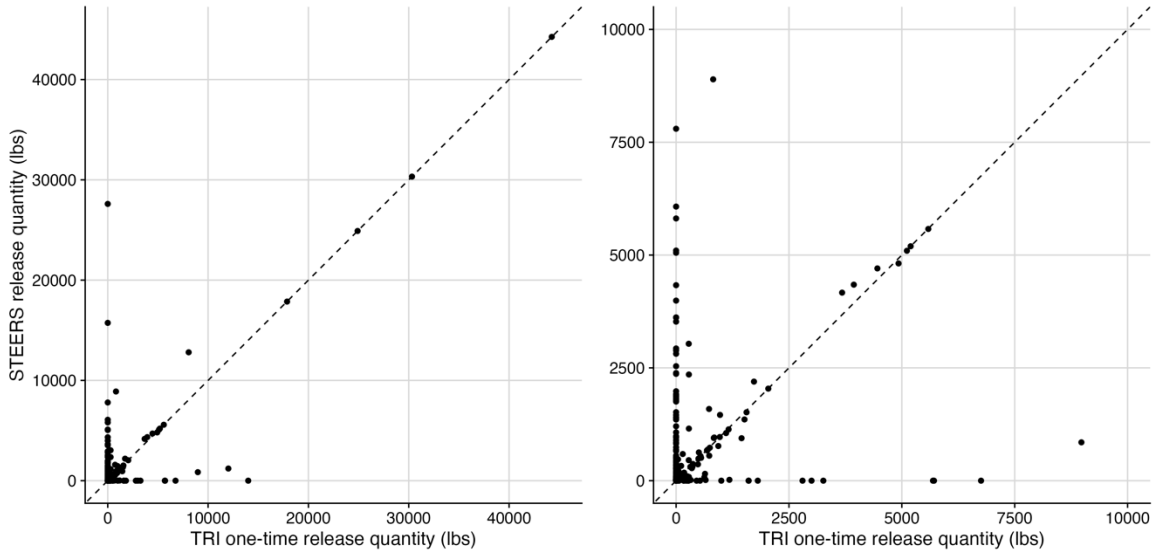

Figure 2. Annual emissions of 1,3-butadiene, benzene, chloroprene, ethylene oxide, ethylene dichloride, or vinyl chloride reported to the STEERS vs. annual emissions reported to the TRI as one-time releases. Each point represents a single reporting year, chemical, and facility located in Texas and in the HON, P&RI, and/or P&RII source categories. The right panel provides a closer look at the data in the left panel by including only year, chemical, and facility combinations where emissions reported to both STEERS and TRI were less than 10,000 lbs. In most cases, points fall far from the one-to-one line (dotted line), demonstrating large discrepancies between emissions reported to the STEERS and to the TRI one-time release category.

Methodology for comparison of monthly total SSM emissions during months with and without extreme weather:

We accessed the Texas air emission event report database[6] to obtain reported SSM emissions from HON, P&R I, and P&R II facilities between 2010 and 2022. We only included final reports and emissions reported in units of pounds for criteria pollutants (including nitrogen dioxide, sulfur dioxide, particulate matter, and carbon monoxide), speciated VOCs (including ethylene oxide, 1,3-butadiene, chloroprene, ethylene dichloride, vinyl chloride, benzene, formaldehyde and its precursors and hundreds of other pollutants), as well as reports of general unspeciated VOCs. We excluded emissions of carbon dioxide, water, and oxygen. We calculated total monthly SSM emissions by summing emissions within each month across all HON, P&RI, and P&R II facilities. In the main text, we present total monthly SSM emissions for these facilities in August 2017, when Hurricane Harvey hit, and in February 2021, when Winter Storm Uri hit. We compare these specific months with mean monthly SSM emissions reported by all HON, P&RI, and P&R II facilities.

[6] https://www2.tceq.texas.gov/oce/eer/