EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

February 1, 2016
Administrator Gina McCarthy
Office of the Administrator
U.S. Environmental Protection Agency
Room 3000
William Jefferson Clinton Building
1200 Pennsylvania Ave., NW
Washington, DC 20460
(McCarthy.Gina@epa.gov)

BY FIRST CLASS MAIL, FEDERAL EXPRESS, AND EMAIL

Re: Petition for Reconsideration of and Petition for New Final Rule for Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards; Final Rule, Docket ID No. EPA-HQ-OAR-2010-0682.

Dear Administrator McCarthy,

Petitioners file this petition for reconsideration of certain aspects of the final action taken at 80 Fed. Reg. 75,178 (Dec. 1, 2015), titled Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards; Final Rule ("Final Rule"), and respectfully request that EPA issue a new final rule in these respects that will satisfy the Clean Air Act, reduce communities' exposure to toxic air pollutants that refineries emit, and strengthen health protections. The parties submitting this petition are Air Alliance Houston (2409 Commerce St., Houston, TX 77003); California Communities Against Toxics (P.O. Box 845, Rosamond, CA 93560); Clean Air Council (135 S. 19th St., Suite 300, Philadelphia, PA 19103); Coalition For A Safe Environment (1601 North Wilmington Blvd., Wilmington, CA 90744); Community In-Power & Development Association (1301 Kansas Ave., Port Arthur, TX 77640); Del Amo Action Committee (4542 Irone Ave., Rosamond, CA 93560); Environmental Integrity Project (1000 Vermont Ave. NW, Washington, D.C. 20005); Louisiana Bucket Brigade (4226 Canal St., New Orleans, LA 70119); Sierra Club (85 Second St., 2nd Floor, San Francisco, CA 94105); Texas Environmental Justice Advocacy Services (TEJAS, 6733 Harrisburg Blvd., Houston, TX 77011); and Utah Physicians for a Healthy Environment (423 W. 800 S., Suite A108, Salt Lake City, UT 84101). This is a petition under Clean Air Act ("CAA" or "the Act") § 307(d)(7)(B), 42 U.S.C. § 7607(d)(7)(B).

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I. THE MALFUNCTION EXEMPTIONS EPA FINALIZED IN THE RULE ARE UNLAWFUL AND ARBITRARY AND WERE NOT PRESENTED FOR NOTICE-AND-COMMENT.

A. Background on Malfunctions

1. The Law.

The Clean Air Act defines emission standards as "continuous," and directs that EPA establish standards pursuant to § 7412 for air toxics sources that apply at all times. To protect public health and the environment from hazardous air pollution, EPA must set emission standards for all major source categories, including refineries to assure that all sources must match the "average emission limitation achieved" by the relevant best-performing sources, and also ensure the "maximum degree of emission reduction" that is "achievable" overall. 42 U.S.C. § 7412(d)(2), (3). EPA also must ensure under section 7412(f) that it sets additional standards if required to ensure that communities are not exposed to hazardous air pollution that causes an unacceptable amount of health risks, and to assure that the standards provide an "ample margin of safety to protect public health" and "prevent … an adverse environmental effect." *Id.* § 7412(f)(2).

An exemption from these requirements for emissions resulting from a malfunction is patently unlawful under the Act. In 2008, the D.C. Circuit so held, and then vacated the exemption in the general rules applicable to certain source categories. *Sierra Club v. EPA*, 551 F.3d 1019, 1027-28 (D.C. Cir. 2008) ("Congress has required that there must be continuous section 112-compliant standards."; "Congress … did not authorize the Administrator to relax emission standards on a temporal basis.").

Penalties for violations also must apply at all times under the Act. The statute prohibits EPA from removing the potential for civil penalties from an emission release that would otherwise warrant such penalties as a violation of an emission standard. *See* 42 U.S.C. §§ 7604(a), 7413(e). The D.C. Circuit so held in striking down as unlawful the "affirmative defense" to civil penalties that EPA had put into the cement kilns rule. *Natural Res. Def. Council v. EPA*, 749 F.3d 1055 (D.C. Cir. 2014).

Since the 2008 D.C. Circuit decision, EPA has repeatedly acknowledged that a malfunction exemption is unlawful. 79 Fed. Reg. 36,880, 36,912, 36,942 (June 30, 2014) (citing *Sierra Club*, 551 F.3d 1019); 80 Fed. Reg. at 75,184. EPA also has acknowledged that an affirmative defense is unlawful because it is up to the courts, not EPA, to determine whether an uncontrolled emission release warrants a penalty. *See, e.g.*, EPA's Response to Comments ("RTC") at 320, EPA-HQ-OAR-2010-0682-0802 (citing *NRDC*, 749 F.3d at 1063).

2. Refineries Have A Long History of Serious and Preventable Malfunctions That Threaten Public Health and Safety.

Yet for years refineries have relied on a rule-specific exemption for malfunctions that excused excessive emissions of toxic air pollution. This exemption allowed them to avoid the consequences of violating the Clean Air Act simply by claiming that an emission spike, above the level of the standards, was due to a malfunction. *See, e.g.*, 40 C.F.R. § 63.1570(g) (2006).[1]

For example, data from Texas refineries show that leaks, compressor breakdowns, and power losses frequently cause facilities to report excess emissions.[2] From 2009 to 2013, Texas refineries alone released nearly 1 million pounds of hazardous air pollution during non-routine events under the prior startup, shutdown, malfunction (SSM) exemption, which included malfunctions.[3] In most instances, facilities simply reported that emissions were not a violation because they were caused by a malfunction and subject to the affirmative defense.[4] Between 2014 and 2015, refineries in Texas reported approximately 600 excess emission events.[5] The industry asserted that an affirmative defense for malfunctions should apply to more than 97% of those events.[6]

The sheer frequency of these events at certain refineries and not others illustrates that better planning and maintenance could help prevent these emissions in many instances and almost always minimize the amount of pollution released when an event is absolutely unavoidable. Indeed, the Chemical Safety Board investigation reports provide significant examples of this – describing specific maintenance and process safety steps that could and should have been taken to prevent the catastrophic upsets that occurred at refineries in California and Washington. *See* notes, *infra* 15-17. Communities exposed to refinery pollution around the U.S. have suffered extra emissions of toxic air pollution for over 7 years since the D.C. Circuit's 2008 decision because EPA did not remove the standards' general malfunction exemption for refineries until this Final Rule.

The malfunction problem at refineries exacerbates the exposure and health impacts of refinery pollution on all exposed people, but particularly for children, people of color, and low-income people who are disproportionately exposed. One in three U.S. schoolchildren goes to school within the vulnerability

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[1] For example, the prior standards stated as follows: "Consistent with §§ 63.6(e) and 63.7(e)(1), deviations that occur during a period of startup, shutdown, or malfunction are not violations if you demonstrate to the Administrator's satisfaction that you were operating in accordance with § 63.6(e)(1). The SSMP must include elements designed to minimize the frequency of such periods (i.e., root cause analysis). The Administrator will determine whether deviations that occur during a period of startup, shutdown, or malfunction are violations, according to the provisions in § 63.6(e)." 40 C.F.R. § 63.1570(g) (2006); *see also* 40 C.F.R. § 63.641 (2006) (previously defining "miscellaneous process vents" as not including: "Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations"); *see also* Redlines of changes in Final Rule, EPA-HQ-OAR-2010-0682-0805.

[2] Environmental Integrity Project, *Accident Prone: Malfunctions and "Abnormal" Emission Events at Refineries, Chemical Plants, and Natural Gas Facilities in Texas, 2009-2011* (July 2012), *available at* http://www.environmentalintegrity.org/news_reports/documents/20120718AccidentProneFinal.pdf; *see also* EIP, Gaming the System, How Off-the-Books Industrial Upset Emissions Cheat the Public Out of Clean Air (2004).

[3] *See* Petitioners' Comments at 26-27, EPA-HQ-OAR-2010-0682-0568 (citing Microsoft Excel File containing TCEQ Emission Event Database (2012-2013), *available at* http://www11.tceq.texas.gov/oce/eer/index.cfm).

[4] Microsoft Excel File Created by EIP From Data Collected by TCEQ, Emission Event Database, 2014-2015 (Data included in Appendix, 2014-2015 TX EE Raw Data).

[5] *Id*.

[6] *Id*.

zone of a hazardous chemical facility, such as a refinery.[7] The people most exposed to toxic air pollution and to health and safety threats from refinery and chemical plants, living in the most vulnerable zones around these facilities, are disproportionately communities of color and lower-income communities, as shown by EPA's own demographic analysis in this rule and outlined in a May 2014 report.[8]

Some refinery malfunctions cause emission spikes in hazardous air pollution that threaten public health without also causing additional safety problems such as explosions or fires. Photos of some incidents, as examples, are provided in the Appendix.[9] For example, EPA determined that the record of this rulemaking includes "approximately 430 records of PRD [pressure relief device] and flare HAP release events" from 25 facilities, as reported in response to EPA's information collection request that include dangerous pollutants. Final Residual Risk Assessment at App. 13 at 2 & attach.1, EPA-HQ-OAR-2010-0682-0800 ("RRA"). EPA estimated that, as a result of these releases, "The model predicted a worst-case 1-hour concentration from PRDs of 408.3 µg/m$^{3)}$/(g/s) and 5.851 µg/m$^{3)}$/(g/s) from flares" and "annual average concentrations are predicted to be 40.8 µg/m3/(g/s) from PRDs and 0.5851 µg/m3/(g/s) from flares." *Id.* App. 13 at 3.

EPA did not explain how it reached these numbers; or if these determinations refer to total hazardous air pollutants (HAPs) or benzene. Regardless, EPA's analysis demonstrates significant one-hour and annual average concentrations of HAPs. If these values are for benzene, the values are particularly high when compared to the best available health reference values for benzene, as shown below. The pressure relief device (PRD) and combined PRD-flare concentrations EPA predicts are higher than what Cal. EPA would deem health-protective for both acute and chronic exposure. Even if EPA's outdated 2003 IRIS values are the only values considered, these concentrations show a significant health concern because, although the PRD and flare values alone do not hit the IRIS acute or chronic values, people are being exposed to these emissions and concentrations in combination with other emissions from refineries, causing chronic and acute risks, as discussed in EPA's risk assessment. RRA at 41-53, EPA-HQ-OAR-2010-0682-0800.

	Cal. EPA OEHHA (2014)	EPA IRIS Values (2003)
Acute REL	27 µg/m^3 (8 ppb)	1300 µg/m^3 (1.3 mg/m^3)
8-hour / chronic non-cancer REL	3 µg/m^3 (1 ppb)	30 µg/m^3 (0.03 mg/m^3)

Sources: Cal. EPA OEHHA, Benzene RELs, http://oehha.ca.gov/air/chronic_rels/BenzeneJune2014.html; RRA at 24, 31, EPA-HQ-OAR-2010-0682-0800 (using 2003 Integrated Risk Information System values from www.epa.gov/iris).

Some of the most widely-known malfunctions and excess emission events are the ones that accompany fires, explosions, and other serious breaches of the refinery system. These malfunctions well

[7] Ctr. for Effective Gov't, *Kids In Danger Zones* (Sept. 2014), a*vailable at*, http://www.foreffectivegov.org/files/kids-in-danger-zones-report.pdf.

[8] *See* Paul Orum *et al.*, *Who's In Danger? Race, Poverty, and Chemical Disasters, A Demographic Analysis of Chemical Disaster Vulnerability Zones*, Envtl. Justice & Health Alliance for Chemical Policy Reform (May 2014), *available at* http://comingcleaninc.org/assets/media/images/Reports/Who's%20in%20Danger%20Report%20and%20Table%20FINAL.pdf; Analysis of Socio-Economic Factors for Populations Living Near Petroleum Refineries, EPA-HQ-OAR-2010-0682-0226; Analysis of Socio-Economic Factors for Populations Living Near Petroleum Refineries Post-Control Scenario, EPA-HQ-OAR-2010-0682-0227.

[9] *See* photo collection of Petitioners provided in accompanying Appendix; *see also* 2009 video of incident at Holly refinery, Utah, http://environews.tv/11049-emergency-bypass-at-holly-oil-refinery-short-version.

illustrate the severity of the problem with refineries failing to perform necessary process safety planning, maintenance, and other actions that can prevent such incidents, and toxic emission spikes that they cause.

During the decade leading up to EPA's Final Rule in 2015, nine refineries experienced catastrophic malfunctions that threatened health and safety for nearby communities and triggered investigations by the Chemical Safety Board (CSB). These incidents included:

- **March 23, 2005 – BP America Refinery Explosion, Texas City, TX**[10]
- **November 5, 2005 – Valero Refinery Asphyxiation Incident, Delaware City, DE**[11]
- **February 16, 2007 – Valero Refinery Propane Fire, Sunray, TX**[12]
- **January 12, 2009 – Silver Eagle Refinery Flash Fire And Explosion and Catastrophic Pipe Explosion, Woods Cross, UT**[13]
- **October 23, 2009 – Caribbean Petroleum Refining Tank Explosion and Fire, Bayamon, PR**[14]
- **April 2, 2010 – Tesoro Refinery Fatal Explosion and Fire, Anacortes, WA**[15]
- **August 6, 2012 – Chevron Refinery Fire, Richmond, CA**[16]
- **Feb. 18, 2015 – Exxon Mobil Refinery explosion, Torrance, CA.**[17]
- **August and November 2015: Multiple incidents at the Delaware City, DE refinery.**[18]

As additional examples not included in the CSB's investigation, there were also recent incidents at Utah refineries, including:

- **April 30, 2008 – Holly Oil Refinery fire, SLC, Utah**[19]
- **Oct. 21, 2009 – Tesoro Refinery flare stack explosion, North Salt Lake City, UT.**[20]

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[10] CSB, *BP America Refinery Explosion*, http://www.csb.gov/bp-america-refinery-explosion; CSB, *Urgent Recommendations*, *available at* http://www.csb.gov/assets/1/19/BP_Recs.pdf.

[11] CSB, *Valero Refinery Asphyxiation Incident*, http://www.csb.gov/valero-refinery-asphyxiation-incident/.

[12] CSB, *Investigation Report: LPG Fire at Valero-McKee Refinery* (Feb. 2007), *available at* http://www.csb.gov/assets/1/19/CSBFinalReportValeroSunray.pdf.

[13] CSB, *Silver Eagle Refinery Flash Fire and Explosion and Catastrophic Pipe Explosion*, http://www.csb.gov/silver-eagle-refinery-flash-fire-and-explosion-and-catastrophic-pipe-explosion.

[14] CSB, *CSB Conducting Full Investigation of Massive Tank Fire at Caribe and Petroleum Refining* (Nov. 2009) http://www.csb.gov/csb-conducting-full-investigation-of-massive-tank-fire-at-caribbean-petroleum-refining-investigative-team-plans-to-thoroughly-examine-facility-safety-practices/.

[15] CSB, *Investigation Report: Catastrophic Rupture of Heat Exchanger*(Apr. 2010), *available at* http://www.csb.gov/assets/1/7/Tesoro_Anacortes_2014-May-01.pdf.

[16] CSB, *Regulatory Report: Chevron Richmond Refinery Pipe Rupture and Fire* (May 2014), a*vailable at* .http://www.csb.gov/assets/1/19/Chevron_Regulatory_Report_06272014.pdf; CSB, *Chevron Refinery Fire*, http://www.csb.gov/chevron-refinery-fire/.

[17] CSB, *ExxonMobil Refinery Explosion*, http://www.csb.gov/exxonmobil-refinery-explosion

[18] CSB, *Delaware City Refining Company*, http://www.csb.gov/delaware-city-refining-company

[19] Video, *Holly refinery oil fire* (Apr. 30, 2008), http://www.youtube.com/watch?v=2eLeEMVrrBw.

Notably the Center for Public Integrity found in analyzing occupational health and safety information that: "24 of the 58 refineries examined by federal officials as of November 2010 had fires or explosions after [OSHA] inspections were opened."[21]

An independent analysis by the United Steelworkers found at least four major incidents at U.S. refineries in the last decade resulted in harmful releases of the extremely hazardous air pollutant hydrogen fluoride:

- **March 5, 2012 – CITGO Corpus Christi, Texas**
- **February 28, 2011 – Marathon Canton, Ohio**
- **July 19, 2009 – CITGO Corpus Christi, Texas**
- **March 11, 2009 – Sunoco (Delta) Philadelphia, Pennsylvania**[22]

Reports from Utah, Louisiana, and Texas show frequent upsets and other catastrophic events that have caused or can cause substantial amounts of toxic air pollution, as discussed in Petitioners' comments filed in 2014.[23]

The Louisiana Bucket Brigade has documented the extensive safety problems and resulting air pollution problems in four major reports called "Common Ground," which Petitioners' provided as an appendix to their original comments.[24]

The investigation reports for particular incidents, from the U.S. Chemical Safety Board, for example, have found repeatedly that advance planning and maintenance would have prevented many of the major recent refinery disasters.[25]

- For example, after the April 2, 2010 fire at the Tesoro refinery in Anacortes, Washington that killed seven workers, the investigation revealed the exchanger that blew apart was put into service in 1972 and that inspections had not occurred that could have prevented the disaster. Judy Schurke, director of the Washington state agency that oversees workplace safety and health stated, "This explosion and the deaths of these men and women would never have occurred had Tesoro

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[20] Testimony before Congress, Rafael Moure-Eraso, Chairperson and CEO, CSB at 16 (Oct. 4, 2010), *available at* http://www.asse.org/assets/1/7/061313-CSB-Draft-Response-Waxman-Markey-10-04-2010-FINAL.pdf (describing that at Tesoro in 2009, "[t]he CSB began an investigation due to similarities with the BP Texas City refinery disaster of 2005, sending a team from its Denver office," but was unable to complete its investigation because "the company removed and destructively examined or repaired evidence from the fire before the CSB could examine it").

[21] Jim Morris, *et al.*, *Regulatory flaws, repeated violations put oil refinery workers at risk: Industry can stall penalties and fixes despite rash of fires, explosions*, Ctr. for Pub. Integrity (Feb. 28, 2011; updated: May 19, 2014), http://www.publicintegrity.org/2011/02/28/2111/regulatory-flaws-repeated-violations-put-oil-refinery-workers-risk ("CPI Report").

[22] United Steelworkers, *A Risk Too Great: Hydrofluoric Acid in U.S. Refineries* at vi, A-3 (Apr. 2013), a*vailable at* http://www.usw.org/workplaces/oil/A-Risk-Too-Great.pdf.

[23] EPA-HQ-OAR-2010-0682-0568.

[24] Louisiana Bucket Brigade Reports: *Common Ground I-IV*, http://www.labucketbrigade.org.

[25] *See* CSB, *Investigations* www.csb.gov/investigations; CalEPA, *Interagency Refinery Task Force* http://www.calepa.ca.gov/Refinery/. *See, e.g.*, CSB, *Catastrophic Rupture of Heat Exchanger*; CSB, *Regulatory Report: Chevron Richmond Refinery Pipe Rupture and Fire*; CSB, *Chevron Refinery Fire*.

tested their equipment in a manner consistent with standard industry practices, their own policies and state regulations."[26]

- After the Chevron Richmond refinery fire that sent 15,000 community members to seek urgent medical care, the CSB found that the facility had not performed inspections and pipe upgrades that could have prevented the incident.[27]
- And in the ongoing CSB investigation of the ExxonMobil Refinery explosion in Torrance, the CSB has stated: "While the investigation into the February 18, 2015, explosion is ongoing, investigators have already identified multiple process safety management deficiencies that helped contribute to the accident."[28]

3. EPA's Allowance for Malfunctions In the Rule for Refineries.

Once compelled to review and update the refineries air toxics standards in the Final Rule now at issue, EPA finally removed the general malfunction exemption for refineries. 80 Fed. Reg. at 75,184. EPA also finalized a prohibition on uncontrolled releases of toxic emissions from bypass lines. *Id.* at 75,243 (promulgating § 63.644(c) ("Use of the bypass at any time to divert a Group 1 miscellaneous process vent stream to the atmosphere or to a control device that does not comply with the requirements … is an emissions standards violation."); 79 Fed. Reg. at 36,912-13. Both of those are important and legally required steps to prevent and reduce malfunctions and the resulting toxic emission spikes and other health and safety hazards.

EPA did not complete the job of removing all unlawful malfunction exemptions in the Final Rule, however.

EPA had initially proposed to prohibit all uncontrolled or "atmospheric" releases of emissions from pressure relief devices, as it did for bypass lines, recognizing that uncontrolled emissions are unlawful. 79 Fed. Reg. at 36,912. EPA also proposed to require flares to operate without visible smoke emissions at all times. *Id.* at 36,904-12.

But the agency did not follow through. In a change of heart, EPA promulgated new exemptions for uncontrolled releases from PRDs and smoking flares. The Final Rule will allow:

- Up to two uncontrolled releases from all 15,000+ PRDs at refineries every three years – which would permit approximately two uncontrolled PRD releases to the atmosphere from every refinery every day of the year.
- Up to two smoking emission events at every flare every three years.
- Particular exemptions from standards for "*force majeure*" events, just another name for a malfunction.
- Source-type exemptions for PRD releases.

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[26] Phuong Le, *$2.39 million fine for Wash. state refinery blast*, Washington Post (Oct. 4, 2010), http://www.washingtonpost.com/wp-dyn/content/article/2010/10/04/AR2010100403708.html.

[27] CSB, *Final Investigation Report: Chevron Richmond Refinery Pipe Rupture and Fire* at 7-10 (Jan. 2015) ("Chevron did not effectively implement internal recommendations to help prevent pipe failures due to sulfidation corrosion" including inspections and pipe replacement recommendations, or other related process safety measures), *available at* http://www.csb.gov/file.aspx?DocumentId=666.

[28] CSB, *U.S. Chemical Safety Board Finds Multiple Safety Deficiencies Led to February 2015 Explosion* (Jan. 13, 2016), http://www.csb.gov/us-chemical-safety-board-finds-multiple-safety-deficiencies-led-to-february-2015-explosion-and-serious-near-miss-at-the-exxon-mobil-refinery-in-torrance-california/.

While EPA has attempted to camouflage these exemptions as part of "work practice standards," they are exemptions and do not meet any applicable test for such standards. They are impermissible because they violate Clean Air Act requirements for an emission standard to apply at all times. In addition, and alternatively, even if the exemptions could somehow be considered a work practice standard, they are not permissible under § 7412(h) because traditional emission restrictions are feasible to restrict the excess emissions EPA seeks to authorize – and, indeed, are in place for the equipment routed to the PRDs and flares; and because EPA has not met the Act's requirements to set separate standards that apply continuously, consistent with § 7412(d)(2)-(3), for excess emissions.

EPA has also finalized additional exemptions that apply in all circumstances – such as an exemption for releases during a "*force majeure*" incident. These exemptions authorize a refinery to emit an unlimited amount of hazardous pollution from PRDs and flares without committing a violation of any standard. All of these exemptions prevent anyone, including EPA, states, and citizens, from seeking any penalty, including civil penalties, for such releases, because none are defined as a violation. EPA's malfunction exemptions unlawfully and arbitrarily authorize refineries to blow through those existing standards, if the emissions are routed through PRDs or smoking flares, and to avoid any liability for civil penalties as a result.

B. Grounds for Objection to Malfunction Exemptions for Uncontrolled Atmospheric Releases from Refinery Equipment.

Because the PRD exemptions discussed herein did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). EPA did not give notice, much less propose in any reviewable form on which the public could comment, that the agency would craft an entirely new set of exemptions for any type of malfunction, "emergency," or "*force majeure*" incident. It would be a violation of the notice-and-comment requirements of the Act not to grant reconsideration and consider public comment on this issue. *Id.* § 7607(d)(9)(D), § 7607(d)(3), (5), § 7607(h). Further, because of these changes, EPA's Final Rule does not require continuous compliance with § 7412 standards and, therefore, contravenes the Clean Air Act and flouts D.C. Circuit precedent. As a practical matter, the new aspects of EPA's rule authorize uncontrolled releases of pollution without triggering any violation or penalty, and undermine the efficacy of the other standards to reduce hazardous air pollution from refineries. For these reasons, and as further explained below, the objections described in this petition are "of central relevance to the outcome of the rule." 42 U.S.C. § 7607(d)(7)(B).

1. Background on Pressure Relief Devices

Petroleum refineries operate a multitude of process units, piping, storage vessels, and other units at high pressure. During normal operations, these units do not release HAP emissions or other material, to the atmosphere. But operators intentionally include PRDs to vent reactors and other equipment to reduce pressure within the equipment when it is not operating properly. "These pressure build-ups are typically a sign of a malfunction of the underlying equipment." 80 Fed. Reg. at 75,214. EPA has long recognized "relief valve discharges to be the result of malfunctions," starting with its original standards, as the agency explained in the Proposed Rule. 79 Fed. Reg. 36,912 (stating that in Refinery MACT 1, EPA set "equipment leak provisions that applied only after the pressure relief occurred").

EPA's information collection request (ICR) data shows that there are approximately 15,000 uncontrolled PRDs at refineries across the country; or about 1000 per refinery. Flare Control Option Impacts Memo for Final Refinery Sector Rule (July 31, 2015), EPA-HQ-OAR-2010-0682-0748. The PRDs are linked with specific processes and storage units at refineries including: distillation units, fluid catalytic cracking units, catalytic hydrocrackers, flare systems, and others. Facilities intentionally or

automatically open these valves or other devices as a result of or to prevent some other type of malfunction at connected equipment. Indeed, "[a]s defined in the … standards, relief valves are valves used only to release unplanned, nonroutine discharges." 79 Fed. Reg. at 36,912; *see* 40 C.F.R. § 63.641 (definition of "relief valve").[29] EPA found that such releases are usually due to "operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause" from some other part of the refinery. 79 Fed. Reg. at 36,912.

a. Pollution Releases from Pressure Relief Devices

Emissions from malfunctions at refineries that are released through PRDs are a significant source of underestimated and undercounted HAP emissions.

The Texas Commission on Environmental Quality (TCEQ) emission event database shows that facilities frequently report significant malfunction HAP emissions that are released from PRDs. For example, in 2015 Shell Deer Park released over 150 tons of 1-3 butadiene from a single PRD release. Between 2005 and 2014, Texas refineries released at least 263 tons of HAP from PRDs during emission events.[30]

The South Coast Air Quality Management District (South Coast AQMD) data on PRD releases collected from 2003 to 2006 demonstrate that the seven refineries operating in the Los Angeles area released between 0.04 to 89 tons per year of VOCs (including HAPs) from PRDs. *See* South Coast AQMD, Final Staff Report for Proposed Amended Rule 1173 - Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (May 15, 2007) at ES-2, 2-3 to 2-5, EPA-HQ-OAR-2010-0869-0024. Based on the ratio of HAPs to VOCs released from PRDs as reported to the ICR, petitioners estimate that Southern California refineries released between .001 and 2.44 tons of HAPs from PRDs during the reported year.

EPA has repeatedly recognized that uncontrolled releases from PRDs used at refineries and other similarly designed plants can be large and exceed the routine, allowable emissions of a facility. *See, e.g.*, 79 Fed. Reg. at 36,912 ("Pressure release events from relief valves to the atmosphere have the potential to emit large quantities of HAP."); *id.* at 36,945 ("emissions during a malfunction event can be significantly higher than emissions at any other time of source operation"); RTC at 10, EPA-HQ-OAR-2010-0682-0802 ("We agree that SSM emissions can be significant and that these releases, particularly when directed straight to the atmosphere rather than to a flare or other control device can quickly exceed emissions from routine operations"; "large release events can significantly impact a facility's annual emissions"); *see also* Polyvinyl Chloride Production Plants Rule, 77 Fed. Reg. 22,848, 22,881-82 (Apr. 17, 2012) (explaining that PRDs at PVC plants "have the potential to emit large quantities of HAP, and a large number of these releases that may occur may not be identified and controlled in a timely manner, and may be due to repeat problems that have not been corrected.").

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[29] Definition of relief valve: "a valve used only to release an unplanned, nonroutine discharge. A relief valve discharge can result from an operator error, a malfunction such as a power failure or equipment failure, or other unexpected cause that requires immediate venting of gas from process equipment in order to avoid safety hazards or equipment damage." 40 C.F.R. § 63.641.

[30] Actual emissions are likely higher. First, as EPA recognizes, many facilities do not have accurate monitoring of releases from PRDs. Second, the data provided to TCEQ does not clearly identify which events released emissions from PRDs. Petitioners reviewed the data for certain key terms to identify PRD releases, *e.g.*, PRD, PRV, release to atmosphere, *etc.* This filtering method likely caused petitioners to omit substantial additional emissions events and HAP releases. *See* Microsoft Excel File Created by EIP Labeled PRD-Search-TCEQ-EE-Refineries 2005-2014 (data included in Appendix) (raw data *available at* http://www11.tceq.texas.gov/oce/eer/index.cfm).

In the ICR data EPA collected for the Final Rule, 25 refineries reported a total of 19.31 tons (or over 38,000 pounds) of HAP emissions from PRD releases during the year 2010 alone. *See* RRA, App. 13, EPA-HQ-OAR-2010-0682-0800. As these numbers reflect only one year for only a fraction of the industry, they suggest the emissions from such releases are a substantial problem for the industry as a whole when viewed over time.

Further, in the risk assessment accompanying the Final Rule, EPA determined that these emissions, called "non-routine," are responsible for a significant additional amount of cancer and acute health risks. Notwithstanding the likely underestimation of HAP releases from PRD releases, EPA quantified this as an extra 2-in-1 million cancer risk, and an acute hazard quotient of 14. 80 Fed. Reg. at 75,187. These are significant amounts of additional risk from exposure, a type of harm that EPA has authorized to occur by establishing these new malfunction exemptions. This is particularly troubling given that EPA's risk assessment approach is out-dated and thus does not appropriately capture the full risks that refinery pollution poses. Thus, and as explained in Petitioners' comments, although the risks EPA found are significant, the risks to the most-exposed people near these refineries are likely underestimated and the actual impacts greater than those EPA quantified in its risk assessment.[31]

b. EPA's Action on Pressure Relief Devices

Prior Standards

For any releases from PRDs that occurred as a result of an upset or malfunction, EPA's prior regulatory exemption for SSM emissions applied, allowing a facility to emit uncontrollably without committing a violation of the standards. *See* 79 Fed. Reg. at 36,912 (stating that prior standards "did not restrict relief valve releases to the atmosphere but instead treated them the same as all malfunctions through the SSM exemption provision"). And as EPA continued to acknowledge in finalizing the 2015 refinery rule, "when the PRD opens, we consider this mode of operation to be analogous to an MPV [miscellaneous process vent]," which emits a stream of pollution into the air. RTC at 188, EPA-HQ-OAR-2010-0682-0802. Historically, there has been no limit on emissions when a PRD acts like a process vent. Thus for years, refineries have been able to emit freely through opening pressure relief devices with impunity, and without meeting any emission limits and without controlling their hazardous air pollution.

Proposed Rule

To end this unlawful malfunction exemption, close this loophole, and meet Clean Air Act requirements, EPA proposed that uncontrolled HAP emissions would no longer be allowed from a PRD; any releases from such devices would have to be routed through a control device, like any other HAP releases. 79 Fed. Reg. at 36,912. Thus, EPA appropriately recognized that such malfunction-based, uncontrolled releases from PRDs are unlawful and therefore, proposed that "we can no longer exempt them as permitted malfunction emissions as we did under Refinery MACT 1." ***Id.***

Final Rule

In an about-face, however, EPA's Final Rule does just that. It exempts a certain number of these releases every 3 years, recognizing that the exemptions are for: "[e]pisodic malfunction events … [that] we are now allowing" as permitted malfunction emissions. RTC at 11, EPA-HQ-OAR-2010-0682-0802.

[31] At 32-90, EPA-HQ-OAR-2010-0682-0568 (citing ways in which EPA's risk assessment approach is out-dated and less protective than Cal. EPA OEHHA's approach and less protective than protocols and methods recommended by the National Academy of Sciences in a 2009 *Science and Decisions* report).

EPA did not finalize the proposed prohibition on uncontrolled releases of HAPs directly to the atmosphere when PRDs are automatically or intentionally opened. As stated, the "[o]perating requirements" for PRDs apply "[e]xcept during a pressure release." 80 Fed. Reg. at 75,244 (40 C.F.R. § 63.648)(j)(1)). Instead, for pressure releases, the Final Rule allows at least one, and in some instances two, free passes to emit uncontrolled pollution every three-year period per PRD, by defining "violation" as not including such releases. *Id.*; 40 C.F.R. § 63.648(j)(3)(v)(A)-(C).

The rule places these provisions into a section entitled "work practice standards" for pressure relief devices. Therein, the rule establishes certain requirements for certain PRD releases that are separate from the malfunction exemptions. 80 Fed. Reg. at 75,208. The Final Rule appropriately establishes that any uncontrolled release due to operator error or poor maintenance is a violation. *Id.*; 40 C.F.R. § 63.648(j)(3)(v)(A). But it defines a violation otherwise as meaning only "[a] second release event … from a single pressure relief device in a 3 calendar year period for the same root cause for the same equipment" or "[a] third release event … from a single pressure relief device in a 3 calendar year period for any reason." 80 Fed. Reg. at 75,245 (40 C.F.R. § 63.648(j)(3)(v)(B)-(C)).[32] Thus, the first, and in some instances the second, such release is not a violation. Further, once such a release begins, it may continue unchecked for up to 5 days. 80 Fed. Reg. at 75,244 (40 C.F.R. § 63.648(j)(2)(i)-(iii) (setting equipment leak standards that only apply "following a pressure release"). The rule further states that the one or two free passes apply to each PRD during a "3 calendar year period," but does not explain how that period of time runs; nor how it will be assessed or reported to EPA and the public to ensure that facilities do not turn this into an even broader exemption.[33]

The Final Rule therefore establishes major exemptions that allow uncontrolled releases due to predictable and often-repeated malfunctions. EPA did not finalize the prohibition on such releases, which would have set the standard at zero, or at the destruction efficiency rate of the control device used. Instead, there is no restriction at all applicable to certain release events and EPA has allowed one or two of these releases to occur every three years without being treated as violations. The standard explicitly defines as a violation only the second or even the third such release from the same PRD during a three-year period. (Whether the second uncontrolled release from the same PRD is a violation depends on whether the release has the same root cause.) Under EPA's new malfunction exemption, every refinery receives at least one free pass – and perhaps two – for an uncontrolled release from every pressure relief device, every three years. And as noted above and in note 34, the time period is neither well-defined, explained, nor limited.

2. EPA Must Grant Reconsideration and Remove the Malfunction Exemptions for PRDs and Routed Equipment.

The exemptions for PRDs did not appear in the proposal, and thus it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). Thus, reconsideration is required because it was a violation of notice-and-comment requirements to finalize such a change to the rules without notice and comment. *Id.* § 7607(d)(9)(D), § 7607(d)(3), (5), § 7607(h). Because EPA provided no opportunity to object to these new provisions during the comment period and because they are of central relevance, § 7607(d)(7)(B) requires EPA to

[32] The additional exemption in these provisions for "*force majeure*" events is also unlawful and arbitrary, in its own right, as discussed in Part D, below.

[33] EPA states in the preamble for the flare provisions that those malfunction exemptions apply to a "rolling 3-year period." 80 Fed. Reg. at 75,212. But, there is no such reference in the regulatory provisions providing for the malfunctions for PRDs or flares, there is no such statement in the preamble for the PRD malfunction exemptions, and there is no other direction to explain what this or the "calendar" year period means or how it shall be implemented and enforced.

grant reconsideration. In particular, because these new aspects of EPA's rule authorize uncontrolled releases of pollution without triggering any violation or penalty, and undermine the efficacy of the other standards to reduce hazardous air pollution from refineries, these objections, as further explained below, are "of central relevance" within the meaning of § 7607(d)(7)(B).

a. The Malfunction Exemptions for PRDs and Routed Equipment Contravene the Clean Air Act.

EPA must grant reconsideration because the malfunction exemptions are unlawful. EPA has set no emission standard satisfying the Act's requirements that applies during the malfunction periods, and EPA has removed any civil penalty liability for certain uncontrolled releases from pressure relief devices, every three years. The separate requirements EPA established for certain PRD releases do not justify or make the malfunction exemptions that EPA has finalized satisfy the requirements of § 7412(d), (f), or (h).

The Act directs EPA to set emission standards for all emitted hazardous air pollutants. 42 U.S.C. § 7412(d), (f); *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 641-42 (D.C. Cir. 2000). The Act defines and requires such emission standards to be continuous. 42 U.S.C. § 7602(k); *Sierra Club*, 551 F.3d at 1028. EPA may not remove the potential for civil penalties from an emission release that would otherwise warrant such penalties as a violation of the Act or of the standards. *NRDC*, 749 F.3d at 1062. Therefore, reconsideration is required for EPA to remove the unlawful malfunction exemptions for uncontrolled releases from PRDs.

EPA had proposed to prohibit uncontrolled releases from PRDs into the atmosphere and the agency must grant reconsideration to finalize that prohibition. 79 Fed. Reg. at 36,912. That is an appropriate requirement to assure compliance with the rest of the emission standards contained in the rule. PRDs are not independent emission points. They vent HAP-containing gases from other emission points in the system, which do not release pollution into the air unless there is a malfunction. If those other emission points are not properly controlled, such that a PRD must be opened, that means those emission points have likely violated the emission standards that apply to them. For example, some equipment that must meet the miscellaneous process vent ("MPV") standards also sometimes route HAP emissions to PRDs. 80 Fed. Reg. at 75,242 (40 C.F.R. § 63.643). If they do not meet those standards, and instead send excess gases through a PRD, EPA will have created a method for bypassing those standards and avoiding a violation, under its new rule.

EPA's uncontrolled emissions exemption for PRDs is thus a blatant malfunction exemption that allows excess, unlimited HAPs to be released from all equipment connected to PRDs. Those pieces of equipment are subject to emission standards, and EPA may not authorize uncontrolled release from PRDs as an escape valve from those standards. The fact that the excess emissions show up in the air after being routed first through the PRD instead of as excess emissions directly from various connected emission points themselves should not obfuscate the problem: EPA has simply created an exemption allowing all equipment connected to PRDs to violate their emission standards without triggering a violation or potential enforcement and penalty liability.

EPA's new exemptions for PRDs, and for smoking flares (as discussed below) are just another variation on the total malfunction exemption and the affirmative defense approach, each of which the D.C. Circuit has found unlawful, as further explained below. This new free-pass-to-pollute version is just as unlawful as each previous approach was found to be. EPA must limit the amount of hazardous air pollution that refineries may release from PRDs rather than continuing to create more exemptions for such pollution. EPA may not authorize uncontrolled and unlimited amounts of hazardous air pollution from refineries by negating the ability to seek penalties for such releases. EPA must follow the Act's notice-and-comment requirements and allow Petitioners, their members, and other affected members of

the public the opportunity to comment on such major new provisions that increase the amount of toxic air pollution communities must breathe and the health impacts and risks resulting from that exposure. EPA must grant reconsideration and follow the Clean Air Act and the D.C. Circuit's directives, rather than repeatedly trying new methods to flout these constraints on its authority.

By promulgating exemptions that allow uncontrolled HAPs to be released into the air, without penalty, EPA has enacted just another version of the unlawful exemptions that the D.C. Circuit has twice found unlawful. *Sierra Club*, 551 F.3d at 1028; *NRDC v. EPA*, 749 F.3d at 1062. No emission standard applies during the uncontrolled releases. Thus, the exemptions violate § 7412(d) and § 7602(k), and flout the D.C. Circuit's decision in *Sierra Club*.

EPA states that "[w]e are establishing standards to address emissions during these periods." 80 Fed. Reg. at 75,184. But as the rule illustrates, there is no restriction at all that applies during the temporal periods which EPA is exempting – *i.e.*, the one or two free passes every three years that are defined as non-violations. *Id.* at 75,244-45 (40 C.F.R. § 63.648(j)). "No control" is not a standard. *See Nat'l Lime Ass'n*, 233 F.3d at 633-34. EPA does not limit the HAP emissions that can result from such releases in any way, and instead authorizes refineries to emit uncontrollably during these periods.

EPA set no standard governing the one to two uncontrolled PRD releases the Final Rule allows, much less any such standard that satisfied the applicable provisions of the Act. No provision of the Clean Air Act allows a complete exemption from controls during a given period of time. And, there is no applicable standard set under any applicable provision that applies during the malfunction periods that EPA has authorized. The PRD malfunction exemptions must be removed, and EPA's proposed prohibition on such releases must be finalized because EPA may not authorize a refinery to bypass all applicable emission standards and send unrestricted excess emissions from equipment into the atmosphere through a PRD.

Contrary to EPA's statement in the preamble to the Final Rule, the agency has not satisfied § 7412(h) by promulgating the PRD uncontrolled release allowances. 80 Fed. Reg. at 75,218. EPA stated that it was setting a work practice standard for PRDs, pursuant to § 7412(h), as a justification for the preventive and corrective action requirements it established, which apply in certain circumstances to PRDs. It did not and could not reasonably explain, however, how it is lawful to authorize completely uncontrolled emissions under § 7412(h), as EPA's regulation authorizing a free pass to pollute does. Such an exemption is not a standard and cannot be authorized by § 7412(h).[34]

Section 7412(h) allows EPA to set a "work practice standard" in lieu of a numerical emission standard if narrow conditions are met. Specifically, EPA may not set such a standard unless it is "not feasible to prescribe or enforce an emission standard." 42 U.S.C. § 7412(h)(1), (2). This means that EPA may not set such a standard unless EPA determines that the pollutant cannot be emitted "through a conveyance designed and constructed to emit or capture such pollutant," or that "application of measurement methodology to a particular class of source is not practicable due to technological and economic limitations." *Id.* § 7412(h)(2)(A)-(B). Even when EPA sets a work practice standard, such a standard must still also satisfy § 7412(d)(2)-(3).

EPA's work practice-only standard for PRDs is unlawful both because EPA did not satisfy the threshold test in § 7412(h), and because even if it could set work practice standards, such standards may not include authorizing an unlimited amount of HAPs to go into the air during a malfunction.

[34] Petitioners challenge only the malfunction exemptions, not the protective measures that are severable and provide additional assurance of compliance with other emission standards in the Rule.

First, EPA cannot use this provision because the authorizations for uncontrolled PRD releases are just exemptions from all of the other refinery standards. The emission points routed to PRDs are themselves already subject to emission standards. *See, e.g.*, 40 C.F.R. § 63.643 (MPV standards); *id.* § 63.648 (equipment leak standards); *id.* § 63.650 (gasoline loading rack provisions); *id.* § 63.651 (marine tank vessel loading operation provisions); *id.* § 63.660 (storage vessels). EPA cannot justify any exemption from such standards for malfunctions simply because excess emissions are routed through a PRD.

Second, and importantly, that EPA has set emission standards for the equipment connected to PRDs and that these standards have been on the books for years shows that it is "feasible to prescribe and enforce an emission standard" for control of the hazardous air pollutants at issue. 42 U.S.C. § 7412(h)(1). EPA cannot get around the limits on its authority to set work practice standards just because excess emissions of these same pollutants are sometimes routed through PRDs.

Third, even assuming EPA could or should set some additional standards for PRDs rather than just prohibiting facilities from routine uncontrolled emissions through them as the agency had originally proposed, EPA's explanation for the uncontrolled releases shows that its action is unlawful and arbitrary. EPA purported to make the requisite § 7412(h) determination generally for PRDs after determining that "the application of a measurement methodology for PRDs is not practicable due to technological and economic limitations" pursuant to § 7412(h)(2). 80 Fed. Reg. at 75,218. This is demonstrably false based on evidence from the record and other information readily available to EPA. First, and foremost, EPA's reporting and recordkeeping requirements mandate refineries to "calculate the quantity of organic HAP released during each pressure release event." *Id.* at 75,244-45. Second, a 2007 South Coast AQMD report found that "new (wireless) technology allows continuous monitoring of PRDs without significant capital expense and makes it easy for operators to identify valve leaks …. VOCs that are emitted from PRDs may be accurately identified, estimated, remedied, and reported immediately."[35] The South Coast AQMD has required refineries to install wireless monitoring on 20% of the PRDs at their facilities since 2003, and on all PRDs since 2009.[36]

There are multiple vendors of this technology, including one vendor with whom EPA met with during this rulemaking, and it is already in use at refineries in the United States.[37] Furthermore, refineries have found that implementing this kind of monitoring technology actually saves money.[38] One chemical plant in the Gulf Coast recouped its investment in 50 permanent and 100 temporary monitoring devices within

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[35] South Coast AQMD, Rule 1173, Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (amended Feb. 6 2009), *available at* http://www.arb.ca.gov/DRDB/SC/CURHTML/R1173.PDF, EPA-HQ-OAR-2010-0682-0761; South Coast AQMD, Final Staff Report for Proposed Amended Rule 1173 - Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants at 3-2 (May 15, 2007), EPA-HQ-OAR-2010-0869-0024.

[36] South Coast AQMD, Staff Report at ES-2, 2-3 to 2-5, EPA-HQ-OAR-2010-0869-0024.

[37] Rosemount Wireless Instrumentation, *Refinery Improves Environmental Compliance and Reduces Costs with Wireless Instruments* (2007) ("the result has been …. true time and rate calculations for brief emissions"), *available at* http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00830-0100-4420.pdf; *see also* Adaptive Wireless Solutions, *Continuous Valve Monitoring for Product Loss Prevention, Emission Reduction and ROI* at 2, *available at* http://www.chemicalprocessing.com/assets/Media/MediaManager/Continuous_Monitoring_for_ROI.pdf; Meeting Record for August 4, 2015, Representatives of Emerson Process Management and Representatives of OAQPS (U.S.EPA), EPA-HQ-OAR-2010-0682-0743 (meeting regarding PRD monitoring tools and technologies).

[38] Rosemount Wireless Instrumentation, *Refinery Improves Environmental Compliance and Reduces Costs with Wireless Instruments*; Adaptive Wireless Solutions, *Continuous Valve Monitoring for Product Loss Prevention, Emission Reduction and ROI* at 2.

6 weeks through reductions in product loss.[39] An installation on 19 valves at a European Refinery cost $38,000 and saved the company $1.1 million.[40] Based on the data, this technology costs approximately $2,000 dollars per PRD. EPA data shows that there are approximately 15,000 atmospheric pressure relief devices in operation at 147 refineries across the country, or approximately 1,000 PRDs per refinery. At a cost of $2,000 a valve, monitoring all valves at a refinery would cost about $2 million dollars, and that is before subtracting any savings a refinery would experience through product recovery. EPA also received data from eighteen refineries that reported the quantity of HAP emissions released during specific PRD release events. *See* ICR Responses, EPA-HQ-OAR-2010-0682-0064 to -0069. So, it is clear both that it is possible to measure these emissions, and that they actually have been measured.

Thus, although EPA can and should retain the actual work practice standards for PRDs on top of the existing emission standards for connected equipment to assure compliance and attempt to prevent fugitive emissions from PRDs, it cannot use § 7412(h) as a way to justify the free pass provisions it finalized for uncontrolled PRD releases. Even assuming *arguendo* that there were any challenge in measuring HAP emissions from PRDs, that could not justify granting refineries a blank check for up to two PRD releases, in any amount, every three years. And, even assuming PRD releases are difficult to measure routinely, the existing data provide a basis for EPA to set a limit and use parameters or other metrics, in part from what the facility knows about the release and existing operations, to assess and assure compliance. EPA has not shown and cannot show why, in view of existing data on the amount, duration, and types of PRD releases, it cannot set an actual limit on these releases.[41]

Further, EPA also did not satisfy or set standards consistent with the requirements of § 7412(d)(2) or (3) that apply during the malfunctions authorized by the Final Rule because there is no continuous standard that satisfies these requirements that applies to restrict emissions at all during such periods.

In particular, EPA did not set a standard that complies with or is "consistent with" the CAA requirements to assure both the "average emission limitation achieved" by the relevant best-performing sources, and the "maximum degree of emission reduction" that is "achievable." 42 U.S.C. § 7412(d)(2)-(3); *id.* § 7412(h)(1) (not authorizing work practice standards unless they are "consistent with … [§ 7412](d) or (f)"). There is no discussion in the record of these factors for PRD releases, much less an analysis or determination that allowing 1-2 uncontrolled releases every 3 years reflects, at minimum, the average of the best performers' reductions, and is the "maximum achievable degree of emission reduction." It is unclear how an uncontrolled release – which, by definition, has no emission limitation of any kind, could ever meet § 7412(d)(2)-(3). And, any provision that allows an unrestricted release of emissions is an exemption, not an emission limitation.

PRDs emit a broad range of amounts of HAPs when opened. EPA's ICR data show that HAP emissions from individual PRD releases estimated and reported by 25 refineries in 2010 varied between less than 1 pound to 14.7 tons. ICR Responses, EPA-HQ-OAR-2010-0682-0064 to -0069. A study of

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[39] Adaptive Wireless Solutions, *Continuous Valve Monitoring for Product Loss Prevention, Emission Reduction and ROI* at 2.

[40] *Id*.

[41] EPA did not and also could not rely on § 7412(h)(1), which allows a work practice-only standard when not possible to design and construct a conveyance for PRD releases. 42 U.S.C. § 7412(h)(1). EPA acknowledged in the rulemaking record that it is possible to route pollutants from a PRD through a flare or other type of control device. 80 Fed. Reg. at 75,213, 75,217-18; 79 Fed. Reg. at 36,912 (proposing to require all PRDs to be routed to control devices rather than releasing uncontrollably into the atmosphere). EPA recognized that this could be done through "existing control devices including flares," and through installing about one new flare per refinery. 80 Fed. Reg. at 75,213. As PRD releases could be captured and controlled, EPA correctly concluded that it could not justify a work practice standard under § 7412(h)(1) to justify failing to set an appropriate emission standard for them.

Los Angeles area refineries found that such releases in a given period of time ranged from 0.4 to 89 tons of VOCs per year, without distinguishing individual events within those annual totals. 2007 South Coast AQMD Staff Report at ES-2, 2-3 to 2-5. Thus, if EPA were to follow § 7412(d)(2)-(3) based on available data, and attempt to set a malfunction standard for PRDs, it would have to restrict HAPs in some way, rather than allow any number of uncontrolled HAP releases. It would have to use the existing data to meet the Act's test for emission standards. For example, EPA recognized that the record of this rulemaking includes "approximately 430 records of PRD and flare HAP pollutant releases," from 25 facilities, as reported in response to EPA's information collection request. RRA App. 13 at 2 & attach.1, EPA-HQ-OAR-2010-0682-0800.

For the work practice standard that EPA set for PRDs, which requires certain steps for certain releases, EPA stated that it was following § 7412(d)(3) by choosing PRD requirements in California air district rules as the "floor" for existing sources (South Coast AQMD rule) and for new sources (BAAQMD rule). 80 Fed. Reg. at 75,213-14. However, the exemption EPA established is inconsistent with § 7412(d) and cannot satisfy it. And, EPA has failed to meet its burden to show, based on substantial evidence and not mere assertions, how its actions are consistent with § 7412(d). The mere fact that local rules allow uncontrolled releases in some circumstances does not mean that existing sources subject to those rules have only achieved the emission reductions that those rules assure; nor does it mean that there are not refineries elsewhere that have not achieved greater emission limitations. *See, e.g.*, *Sierra Club v. EPA*, 167 F.3d 658, 663-64 (D.C. Cir. 1999) (holding that use of existing standards as a proxy is arbitrary and capricious where EPA has not explained why it is reasonable to use such standards as an approximation of the relevant best-performing sources' emission limitations). EPA could not meet the § 7412(d) requirements simply by replicating a local air district's rule. There is no evidence that no source has done better or cannot do better than those rules allow. EPA did not discuss or analyze the data on PRD releases that is in the rule record.

To satisfy § 7412(d), assuming arguendo that it could justify setting a malfunction standard for PRDs, EPA must actually look at the emission limitations "achieved" by the best-performing existing sources, and it must require the "maximum achievable degree in emission reduction" for all sources. Here, EPA did neither. EPA did not explain how the multiple exemptions it allows every 3-year period are the "maximum achievable degree of emission reduction" from PRDs or the equipment linked to them.

Thus, the rule's blanket exemptions for one or two uncontrolled and unlimited releases from being treated as a violation mean that there is no applicable standard that is continuous. Even assuming *arguendo* that EPA could set a work practice standard for PRDs and that it otherwise satisfied § 7412(h) and (d), its action is unlawful because there is no restriction that applies continuously as the Act directs. *See Sierra Club*, 551 F.3d at 1028; 42 U.S.C. § 7604(k). The rule allows an uncontrolled amount of HAPs to be released by a pressure relief device repeatedly, when it is opened at the facility's sole discretion. Once or twice every three years, EPA's rule allows any amount of hazardous air pollution that may come from refinery PRDs to be released. No matter how much hazardous air pollution a PRD emits during the malfunction-exemption period, there is no violation. No matter the original source of emissions – from whatever part of the refinery that has failed to control its emissions such that the facility decides to route them and release them through a PRD – there is no violation. Any part of the facility may exceed the existing emission standards once or twice every three years, as long as the emissions are released through a pressure relief device. These exemptions are therefore both unlawful and arbitrary under the Clean Air Act. EPA has not given and could not provide a valid basis to decide not to control or limit HAPs for a certain number of releases from refinery equipment routed through PRDs for any period of time. EPA's action here means that there is no standard that applies continuously to such equipment.

As the D.C. Circuit said in upholding a prior decision by EPA not to create a malfunction or "excursion" provision, even if an excursion provision (rather than an exemption) might in some circumstance be lawful (which the court did not decide):

> Excursion provisions cannot be framed in simple numerical terms, as, say, an allowance of four excessive discharges per year, without giving mills a license to dump wastes at will on several occasions annually.

Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1057 (D.C. Cir. 1978) (citing *Am. Petrol. Inst. v. EPA*, 540 F.2d 1023, 1036 (10th Cir. 1976) (denying excursions)). That is just a pure exemption, not a "standard." *Id.*

Further, an uncontrolled release that EPA has authorized in this rule does not trigger penalties under the Clean Air Act. By definition, exempting such emissions from the definition of violation negates the meaning of "emission standard," and shows that no standard applies to these releases. Thus the exemptions that EPA finalized also violate the citizen suit and penalty provisions by creating a *de facto* complete defense (not just an affirmative defense) from civil penalties for certain uncontrolled emission releases. *NRDC*, 749 F.3d at 1062; 42 U.S.C. §§ 7604(a), 7413(e)(1). It is up to the courts, not EPA, to determine whether an uncontrolled release of pollution warrants a penalty, not for EPA, up front, to decide that the first one or two receive a free pass. *NRDC*, 749 F.3d at 1063-64.

And under EPA's rule, this is true both for the PRDs, which have no limit on the amount of pollution they can release, and also for whatever equipment is routed to the PRDs. Even though that equipment has its own applicable emission standard, that equipment may avoid meeting that standard by routing pollution through a PRD which has no standard. Thus, by creating the unlawful malfunction exemption for PRDs, EPA has also created an unlawful malfunction exemption for all equipment routed to PRDs. Almost every refinery process has multiple atmospheric PRDs. According to the ICR data, fluid catalytic cracking units have 10 or more PRDs on average, atmospheric distillation units and delayed cokers have 5 on average, and even some flares are equipped with PRDs. Thus, a coke drum that would otherwise be prohibited from releasing emissions from the coke drum vent until the internal drum pressure was below 2 psi (pounds per square inch) could release emissions from a PRD on the coke drum before meeting the applicable standard level one to two times during every three year period. Even flares designed to efficiently control waste gas from other malfunctioning equipment could release emissions directly from PRDs instead of burning the harmful chemicals. In fact, by granting this exemption, EPA may incentivize facilities to release large amount of HAPs at flares to avoid using one of their free passes to the prohibition on visible smoke emissions from flares. Instead of meeting the § 7412 standards that apply to other refinery equipment routed to PRDs, the PRD exemption authorizes a refinery to violate those limits and still have no liability as long as the excess emissions are sent through a valve or PRD into the air. Further, the Final Rule even creates a perverse incentive for operators to install redundant PRDs on process equipment. In this manner, operators could seal off one of multiple redundant PRDs after it experiences a release event to avoid having to worry about running out of exemptions, even though the same equipment linked with that PRD or set of PRDs would be repeatedly malfunctioning and exceeding its emission standards, without liability.

The set of requirements that EPA promulgated for PRDs, outside of the malfunction exemption, do not make the PRD malfunction exemption lawful or turn it into a standard instead of an exemption. The fact that EPA, independent of the malfunction exemptions, has required three non-defined steps to be taken to try to prevent such releases does not mean that there is a continuous § 7412-compliant emission standard that applies. None of these steps actually restricts pollution released during PRD openings. The examples EPA has provided include monitoring mechanisms, such as flow indicators, routine inspection and maintenance, and operator training. 80 Fed. Reg. at 75,244 (40 C.F.R. § 63.648(j)(3)(ii)). Although

there are some potential controls in the list that a refinery may choose to implement (*e.g.*, "deluge systems" and "staged relief system … to a flare or other closed vent system and control device"), the rule does not require any refinery to install these or any other actual controls or limits on PRDs. *Id.* Instead, EPA has given a refinery the choice of whether to restrict PRD releases in any way, in contravention of the Act's requirement to limit these emissions.

Under EPA's regulatory framework, if whatever preventative steps are taken are implemented and fail (or even if they are never actually implemented), and a release still occurs, the results are failed preventative measures, not an emission standard that has been violated. Under the rule, EPA has exempted one or two releases (every three years) from being treated as a violation. Thus poor equipment design, planning, or implementation that causes equipment to break down and release emissions repeatedly would qualify for one to two exemptions. These provisions are an exemption from any standard that limits or controls emissions. Alternatively, if these provisions are treated as part of the work practice standard, then the so-called "standard" includes these exemptions built in, from square one. Either way, the exemptions are unlawful.

Similarly, that there are analyses, reports, and potential corrective action steps required after such releases occur does not mean that there is a continuous emission standard that applies. The uncontrolled releases are not considered a violation, and there is no civil penalty for the HAPs emitted during the allowable PRD releases. No matter how many corrective actions a refinery may take afterward, the release was still an authorized release, allowing an unlimited amount of toxic air pollution to go into the air from refinery equipment, via a PRD. The *post-hoc* measures may help discover why a release happened, and might even help to prevent a future release, but they are not controls or limits on the pollution that was released.

In the Final Rule, there is not even any regulatory requirement to end the release as soon as it is discovered; under the new rule, the release may continue uncontrolled for 5 calendar days. 80 Fed. Reg. at 75,244 (40 C.F.R. § 63.648(j)(2)(i)-(iii)). That is itself a 5-day exemption from the daily penalty that would otherwise be available under the Act for a violation. 42 U.S.C. § 7413(d)(1), (e)(1)-(2) (providing for a "per day" civil penalty).

Just as the SSM reporting and minimization measures that accompanied the general SSM exemption did not make it lawful and did not turn it into a standard, the same is true here. *See, e.g.*, *Sierra Club*, 551 F.3d at 1028. EPA cannot rely on the other measures it enacted for PRDs to hide the fact that it has promulgated a new version of a malfunction exemption that is just as unlawful as the exemption vacated by the D.C. Circuit in 2008. Similarly, EPA's attempt to define a new way in which a refinery can claim excess emissions are not a violation also echoes the "affirmative defense" provision the D.C. Circuit held unlawful. *NRDC*, 749 F.3d at 1064. EPA may not flout statutory constraints Congress enacted on its discretion by trying to remove civil penalty liability for excess emissions that violate the Act and increase human exposure to toxic air pollution directly contrary to its requirements.

b. EPA's malfunction exemptions are arbitrary and capricious under the Clean Air Act.

The rule's exemptions for PRD pollution are also arbitrary and capricious within the meaning of the Clean Air Act. 42 U.S.C. § 7607(d)(9).

EPA provides no rational explanation based on the administrative record for the malfunction exemption for PRD releases from refineries. EPA does not find that or explain how such an exemption is needed to fulfill any purpose of the Clean Air Act, or how it is consistent with the Act's requirements. It

could not do so for reasons described above; such a malfunction is unlawful and inconsistent with the Act.

EPA has repeatedly finalized the type of provision it proposed here – *i.e.*, a prohibition on uncontrolled releases from PRDs that vent directly to the atmosphere, and it did so with full knowledge that allowing such releases without an emission limit is a malfunction exemption prohibited both by the Act and the D.C. Circuit's decision in *Sierra Club*, 551 F.3d at 1028. As one example, EPA acknowledged this in its 2014 chemical plants rule. *See* NESHAP: Group IV Polymers & Resins; Pesticide Active Ingredient Production; Polyether Polyols Production, 79 Fed. Reg. 17,340, 17,349 (Mar. 27, 2014) ("In addition, in order for our treatment of malfunction-caused pressure releases directly to the atmosphere to conform with the reasoning of the Court's ruling, the Final Rule adds a provision stating that HAP emissions releases directly to the atmosphere from PRDs in organic HAP service are prohibited."). EPA's decision not to finalize a similar prohibition here is arbitrary and capricious because it conflicts with the agency's correct interpretation of the law and its policy, as shown in a statement regarding the chemical plants rule: "This is a necessary additional revision to give full effect to our elimination of the general exemption for malfunctions, in light of the Court's reasoning in *Sierra Club*, and is similar to revisions that we have made in other rules in which the SSM exemption has been eliminated (see, e.g., NESHAP for Polyvinyl Chloride and Copolymers Production (77 FR 22848, April 17, 2012))." *Id.*

In a recent industry challenge to one of those other rules that contained the type of provision EPA originally proposed for refineries, the D.C. Circuit upheld the type of provision EPA abandoned in the present rulemaking: preventing uncontrolled releases from PRDs to ensure compliance with emission standards. *See Mexichem Specialty Resins, Inc. v. EPA*, 787 F.3d 544, 560-61 (D.C. Cir. 2015). In view of this, there can be no doubt that the type of provision EPA originally proposed – prohibiting uncontrolled PRD releases – is lawful and consistent with the Act. EPA should have rejected – and on reconsideration must reject – industry commenters' concerns, rather than accommodate them by adding exemptions from the standard without a reasoned explanation and in clear violation of the Act and recent caselaw.

Even assuming *arguendo* that it could somehow satisfy the law and perform an about-face in its legal interpretation and set a standard like it finalized here in limited circumstances, EPA's justification for doing so is arbitrary and capricious. EPA stated that the originally proposed action, a prohibition on uncontrolled releases (*i.e.*, exactly what the law requires) would cause problems, because EPA assumes it would lead to the installation of too many new flares. EPA says new flares would cost too much and that there would be "environmental disbenefits of having additional flare capacity on standby to control these unpredictable and infrequent events." 80 Fed. Reg. at 75,208; *id.* at 75,211, 75,213-14.

- In particular, EPA created an estimate of new flares that would be installed, based on data on the number of atmospheric PRDs reported at refineries. EPA concluded that if the prohibition were finalized, an estimated 151 new flares would be needed, about one flare per refinery. *Id.* at 75,213. EPA concluded this would cost over $300 million in capital cost ($2 million per flare), and $12 million annually to operate the new flares. *Id.* at 75,214.

These conclusions, however, are not lawful or rational and are unsupported by substantial evidence in the record.

First, EPA cannot use cost to justify refusing to control malfunction emissions under § 7412. *See, e.g.*, § 7412(d)(3) (requiring EPA to set standards, without consideration of cost); *id.* § 7412(h)(2)(A) (not including cost). And, as explained in the prior section, its conclusions regarding the economic limitations

of measuring PRD emissions are unsupported by the record. And, EPA's alleged concerns about the cost of a control technology do not support setting work practice standards instead of emission standards.

Second, EPA did not conclude that it was definite or even likely that there would be substantial new flares. Instead, EPA used only potential and hypothetical language – for example:

- EPA stated only "under the proposal [to ban uncontrolled releases from PRDs], refineries would consider installing add-on controls to comply";
- "it may not be feasible to vent some or all of the PRDs to existing flares";
- "negative secondary impacts" can occur when flares are idle which "could be the case if they were installed solely to address PRD releases."

Id. at 75,213 (emphasis added).

Further, recognizing that the installation of a significant number of new flares is uncertain, EPA stated that "[s]ome PRDs may vent materials that are not compatible with flare control and would need to be vented to other controls." *Id.* That statement undercuts the assumption that a significant number of additional flares would be built.

Fourth, EPA assumes, without providing any justification, that about 40 percent of PRD emissions would be piped to a new flare without explaining why that would be true. *Id.*

Fifth, even if it is true that 151 new flares would be installed, EPA has not explained why the cost and environmental disbenefits of doing so would not actually be less than the value of controlling the unlimited PRD emissions that occur every 2-6 years under EPA's analysis, and which can be quite large.

And on this point, it is not clear that flares necessarily must operate with a pilot flame running at all times, producing the GHG and NOx emissions EPA assumes will cause "environmental disbenefits." EPA has not shown this is true based on any evidence in the record. Instead, flares can be operated with a spark ignition system that can be triggered by a flow sensor or monitor. At least eight refineries reported that they operate a total of 15 separate flares in this manner. *See* ICR Responses, EPA-HQ-OAR-2010-0682-0064 to -0069. EPA has not explained or evaluated why flares that only burn pilot gas when necessary cannot be used to reduce emissions from PRD releases.

Moreover, the PRD exemption runs directly contrary to part of the agency's explanation for the PRD requirements it set as a work practice standard. As EPA explained, these provisions "will incentivize refinery owners or operators to eliminate the causes of the releases." 80 Fed. Reg. at 75,184; *id.* at 75,208 ("[o]ver time, these proactive measures will reduce the occurrence of releases and the magnitude of releases when they occur"). But it would create even more of an incentive to do that if EPA simply recognized that such uncontrolled releases are prohibited, as the agency had proposed. And treating one or two exceedances as a non-violation dramatically reduces the incentive to comply with the work practice standards themselves.

The record shows that uncontrolled PRD releases are preventable and avoidable. They only occur when a pressure relief device (such as a valve) is intentionally opened or designed to automatically open to release gases. As EPA states, PRDs "are unique in that they are designed for the purpose of releasing or 'popping' as a safety measure to address pressure build-up in various systems – pipes, tanks, reactors – at a facility." 80 Fed. Reg. at 75,214. They need not occur if a facility avoids over-pressure in the system. *Id.* Such "pressure build-ups are typically a sign of a malfunction of the underlying equipment," and PRDs "are equipment installed specifically to release during malfunctions." *Id.* (emphasis added).

Such releases also can cause significant amounts of HAPs to go into a community's air without any limit or control. *See, e.g.*, RTC at 178 ("A 2-inch valve can release a significant amount of material in a relatively short period of time, so we disagree with the commenters that suggest these types of releases are 'small.'"), EPA-HQ-OAR-2010-0682-0802; *see also* data cited *supra* Part I.B.2, Part I.A.2. Exemptions for such releases, therefore, directly counter the purpose and effect of both the Act's objective to reduce hazardous air pollution from refineries and the specific purpose and effect of the emission standards EPA did put in place for refinery equipment, limiting their pollution. The exemptions may have the practical impact of nullifying the actual emission limitations. There is no protection in the standards that limits such a release to prevent it from being higher than a facility's entire day's, week's, month's, or even year's pollution allowance under the overall standards.

EPA has given no reasoned explanation why these requirements are needed or are lawful. The argument that commenters made – that equipment can fail, and that PRDs are necessary to address over-pressure and avoid a larger safety incident – has no place in the Act's regulatory framework. It may be considered by EPA in an administrative setting or the courts in an enforcement case, but it cannot authorize, up front, a whole set of problematic releases. *See, e.g.*, *NRDC*, 749 F.3d at 1064 ("That is a good argument for EPA to make to the courts—and for the courts to then consider—in future civil cases when this issue arises. But it does not suffice to give EPA authority to create an affirmative defense.").

Besides, EPA has not relied on the necessity of PRD releases to avoid large safety incidents as the basis for its inclusion of the malfunction exemptions. The inclusion of the malfunction exemptions could not be upheld by an argument EPA did not make and adequately support in the record. And, even if EPA had tried to do so, the agency could not rationally rely on safety to allow more uncontrolled malfunction-based HAP releases from PRDS. Instead, a powerful way to prevent such incidents is to prohibit them, consistent with the Act's requirement for standards to apply at all times, such that they are a violation of the Act as the law directs. That would ensure the Act's incentives, including civil liability, are in place to encourage facilities to prevent them. Yet such incentives are precisely what EPA has removed by exempting and allowing PRDs to release excess emissions from refinery equipment, without any violation or liability accruing.

In addition, EPA's multi-tier approach to the malfunction exemptions for PRDs is arbitrary and capricious – allowing a second uncontrolled release if it is not from "the same cause." 80 Fed. Reg. at 75,244. As the D.C. Circuit explained, creating such a multi-stage complicated assessment to determine if a violation has occurred undermines the purpose of the Act and the ability to enforce it:

> Once excursion provisions are promulgated, an enforcement case no longer turns on the sharply defined issue of whether the plant discharged more pollutant than it was allowed to, but instead depends on murky determinations concerning the sequence of events in the plant, whether those events would have been avoidable if other equipment had been installed, and whether the discharge was within the intent of the excursion provision. Consequently, what Congress planned as a simple proceeding suitable for summary judgments would become a form of inquest into the nature of system malfunction.

Weyerhaeuser, 590 F.2d at 1058.

Finally, the way EPA's exemptions are written – applicable to each individual PRD at a refinery, instead of the process unit or equipment that is linked to such a PRD as in the South Coast Air Quality Management District[42] – well illustrates how problematic and capricious EPA's

[42] *See* South Coast AQMD, Rule 1173, Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (Amended Feb. 6, 2009), EPA-HQ-OAR-2010-0682-0761.

exemptions are. As written, operators are free to release HAP emissions from each and every PRD on a process unit one to two times every three years. As a result, operators have the ability to manage PRDs during a malfunction to ensure that the PRD used to vent the emissions has not been used in the previous three years. At units with three or more PRDs, it would then be possible for an operator to never run out of malfunction exemptions, even if the PRD releases were all from the same equipment and even all caused by the same root cause. Further, even if operators do not have complete flexibility as to which PRD equipment vents from during a malfunction, the rule creates an incentive for operators to design process units with multiple redundant PRDs that can be managed in this way to assure a malfunction exemption is always available for all equipment connected to PRDs.

C. Grounds for Objection to Malfunction Exemptions for Smoking Flares.

EPA's Final Rule created an exemption that will allow refinery flares to release visible smoke emissions when (1) the amount of gas routed to the flare exceeds the hydraulic capacity of the flare, and (2) the flare had not released smoke emissions more than once during the prior three years and the flare had not released smoke emissions for the same root cause during the prior three years. This exemption gives the industry one to two free passes from the general prohibition on smoke emissions from flares.

Because the new emergency flare exemptions discussed herein did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). EPA did not give notice, much less propose in any reviewable form on which the public could comment, that the agency would craft such exemptions. It would be a violation of notice-and-comment requirements of the Act not to grant reconsideration and consider public comment on this issue. *Id.* § 7607(d)(9)(D), § 7607(d)(3), (5), § 7607(h). Further, because these new aspects of EPA's rule authorize uncontrolled releases of pollution through smoking flares without triggering any violation or penalty, and undermine the efficacy of the other standards to reduce hazardous air pollution from refineries, this objection is of central relevance. EPA must grant reconsideration because the malfunction exemptions for flaring are unlawful because they contravene the Clean Air Act's requirement that emission limits must apply at all times. They are also arbitrary and capricious, as explained below in more detail.

1. EPA's malfunction exemptions for smoking flares and routed equipment are unlawful and contravene the Clean Air Act.

The new exemptions for flares, like those finalized for PRDs, authorize one or two free passes from liability and the otherwise applicable controls and standards during a 3-calendar year period, regardless how much HAP emissions a smoking flare causes. 80 Fed. Reg. at 75,263 (promulgating "Emergency flaring provisions" at 40 C.F.R. § 63.670(o)). EPA promulgated these exemptions by defining only the second or third smoking flare event (*i.e.*, "visible emissions exceedance events") as a violation – without any restriction applicable to the one or two smoking flare events allowed. *Id.* at 75,264-65 (40 C.F.R. § 67.670(o)(7)).

Thus, in the Final Rule, there is a one or two free pass exemption from the flare requirements for releases above the hydraulic capacity of the flares. This is unlawful under § 7412(d) and 7604(k), as well as §§ 7604 and 7413, as explained above and as the D.C. Circuit held. EPA has set no emission standard and has removed any civil penalty liability for one to two smoking flare incidents every three years. Yet the Act directs EPA to set emission standards for all emitted hazardous air pollutants. 42 U.S.C. § 7412(d), (f); *Nat'l Lime Ass'n*, 233 F.3d at 641-42. The Act defines and requires such emission standards to be continuous. 42 U.S.C. § 7602(k); *Sierra Club*, 551 F.3d at 1028. EPA may not remove the potential for civil penalties from an emission release that would otherwise warrant such penalties as a

violation of the Act or of the standards. *NRDC*, 749 F.3d at 1062. Therefore, reconsideration is required for EPA to remove the unlawful malfunction exemptions for uncontrolled releases from the equipment linked to flares.

Like PRDs, flares are emission points that release emissions from other equipment. They only combust if gases are sent to them. Thus, EPA's creation of a malfunction exemption for smoking flares is actually a double malfunction exemption: (1) it exempts flares from the otherwise applicable standards; and (2) it is a malfunction exemption allowing connected equipment to exceed applicable emission standards for that equipment.

EPA states that "we are finalizing a work practice standard for flares that is based on the best practices of the industry, and considers the rare hydraulic load events that inevitably occur at even the best performing facilities." 80 Fed. Reg. at 75,211. But as the rule illustrates, there is no standard at all that applies during the temporal periods which EPA is exempting – *i.e.*, the one or two free passes for smoking flares every three years that are defined as a non-violation. EPA simply exempted one to two smoking flare incidents every three years, for every flare at every refinery, from the otherwise applicable flare requirements.

Contrary to EPA's statement in the preamble to the Final Rule, the agency has not satisfied § 7412(h) by setting a malfunction exemption for smoking flares. *Id.* at 75,215. Citing § 7412(h)(2)(A), EPA states that it "is not possible to design and construct a conveyance to capture the emissions from a flare." *Id.* If a flare is smoking, however, that may mean it simply needs to be maintained or updated to address the problem, rather than just authorize it to occur without restriction, resulting in an increase in HAP emissions. Importantly, if the problem is a malfunction of equipment routed to the flare, EPA recognizes that it is indeed possible to prevent smoking flares by installing other flares to share the load and prevent smoking flare incidents at a given flare operating beyond its capacity. *See, e.g.*, *id.* at 75,213. Also, add-on equipment is available to augment the smokeless capacity of a flare.[43] Further, EPA has not explained why other types of conveyances are not possible – nor can it justify a standard that exempts equipment routed to a flare from the standards that generally apply to such equipment.

For the other work practice-only factor, § 7412(h)(2)(B), EPA found that the application of a measurement methodology for flare exhaust is not practicable. *Id.* at 75,216. But the emissions from the routed equipment can be measured, and EPA has set emission standards accordingly. Thus, EPA may not use § 7412(h) to set a special exemption for such equipment by allowing smoking flares. Further, at least one of the options EPA has provided for monitoring flares enables a facility to accurately measure the amount of emissions released. Under 40 C.F.R. § 63.670(j)(1), flare operators have the option to measure flare gas composition using a gas chromatograph; and pursuant to 40 C.F.R. § 63.670(i), operators must accurately monitor the gas flow rate. EPA has required facilities to monitor for these provisions in order to ensure that a flare achieves 98% destruction efficiency. Using this information, the gas composition, the gas flow rate, and the destruction efficiency of the flare, it is fairly straightforward to calculate the amount of pollution released.

Moreover, smoking flares are generally preventable through planning and operational design measures, or simply by installing more flares to capture additional gas capacity, if needed. Yet EPA stated it did not set flare standards that apply continuously due to the cost of installing more flares, and the secondary environmental impacts of having extra flares on "hot stand-by" putting more pollution into the air while awaiting a high flaring incident. EPA seems to be basing these conclusions completely on

[43] John Zink Hamworthy, *Smokeless, Safe, Economical Solutions: Refining & Petrochemical Flares* at 4 (this technology can increase the smokeless capacity of a flare by nearly 38%), *available at* http://www.johnzink.com/wp-content/uploads/Flares-Refining-Petrochemical.pdf.

industry-submitted comments and estimates of the flare capacity. 80 Fed. Reg. at 75,213. The record does not appear to contain any independent analysis by EPA testing or assessing whether the industry's predictions are accurate. The agency seems to have accepted the industry's argument wholesale without a rational connection to facts demonstrated. At the same time, EPA expressed skepticism regarding those very data – stating "we are uncertain that refineries actually would install additional flares to the degree commenters claim," recognizing that these data are not well-supported. *Id.* at 75,211.

EPA also did not set any standard that satisfied or is consistent with § 7412(d)(2) or (3) for smoking flare releases. It did not set a standard that could attempt to comply with the requirements to assure the "average emission limitation achieved" by the relevant best-performing sources, nor to assure the "maximum degree of emission reduction" that is "achievable," as directed. 42 U.S.C. § 7412(d)(2)-(3). There is no supported determination showing EPA met this test for smoking flares, much less an analysis or determination that allowing 1-2 uncontrolled such events every 3 calendar years reflects, at minimum, the average of the best performers' reductions, and is the "maximum achievable degree of emission reduction." Instead, although EPA referred to the statutory text, it garbled and distorted the tests, concluding not that its standard assured the average emission limitation that had been achieved -- nor that it was the maximum achievable reduction, but that "3 events in 3 years would appear to be 'achievable' for the average of the best performing flares." 80 Fed. Reg. at 75,211. What is "achievable for the average" is simply not the statutory test. With this statement, EPA plainly has not shown that its Rule assures the "maximum achievable degree of emission reduction" from flares or the emission points routed to them. And, it is unclear how a smoking flare – which, by definition, has no emission limitation of any kind – could ever meet § 7412(d)(2)-(3). As it is certainly not the case that every smoking flare produces the same amount of unlimited emissions, a provision allowing all such emissions is clearly an exemption, not an emission limitation.

Smoking flares may emit a broad range of amounts of HAPs. EPA should consider the data it collected on flares and its own flare study to determine these amounts. Thus, if EPA were to follow § 7412(d)(2)-(3), based on available data, to attempt to set a malfunction standard for flares, it could not set a limit that allowed an unlimited amount of HAPs to go into the air. It would have to use the existing data to meet the Act's test for emission standards. EPA has not explained why its own data on emission exceedances from equipment connected to flares would not allow it to set limits on smoking flares.

EPA did not and could not show based on the record that the complete exemption for one to two smoking flare incidents at each flare, every 3 years, that EPA finalized in any way satisfied § 7412(d)(3)'s requirement to match the "average emission limitation achieved" by the relevant best-performing sources, or satisfied § 7412(d)(2)'s ultimate requirement to assure the "maximum degree of emission reduction" that is "achievable." 42 U.S.C. § 7412(d)(2), (3).

In fact, data from Texas shows that the best performing flares release visible smoke emissions much less frequently than EPA estimates. There were 26 operating refineries in Texas between 2005 and 2014. According to the ICR data, these refineries operated a sum total of 148 flares between them. ICR Responses, EPA-HQ-OAR-2010-0682-0064 to -0069. These facilities are required to report excess emissions, including visible smoke emissions from flares, to the Texas Commission on Environmental Quality (TCEQ). Between 2005 and 2014, eight refineries, representing 51 of the 148 flares in Texas, did not report visible smoke emissions to TCEQ one single time.[44] Five other facilities, operating 30 flares, only reported visible smoke emissions once during the nine years of data available to petitioners.[45] Based

[44] *See* Petitioners' Comments, EPA-HQ-OAR-2010-0682-0568 at 26-27 (citing Microsoft Excel File containing TCEQ Emission Event Database (2012-2013), *available at* http://www11.tceq.texas.gov/oce/eer/index.cfm.

[45] *Id*.

on this data, it is clear that the best performing facilities do not release visible smoke emissions from flares once every 6 years as EPA assumed or that the average facility releases visible smoke emissions once every 4.4 years.

Further, EPA also did not meet the beyond-the-floor test in § 7412(d)(2) by authorizing the smoking flare exemptions. EPA has not demonstrated that allowing multiple smoking flare exemptions from the standards is the "maximum achievable degree of emission reduction" from those flares. For the pieces of equipment linked to those flares, which have applicable emission standards, rather than assure the maximum reduction achievable, EPA's standards create a total escape hatch: allowing the connected equipment to perform at its worst once or twice every 3 years.

Even assuming EPA can meet either condition for flares in general, neither of EPA's findings justifies exempting a set number (1-2) of smoking flares completely from the flare work practice standards that EPA had originally proposed to make applicable at all times. None of EPA's arguments provides a valid basis to decide simply to exempt any number of flare incidents, in any amount of HAPs, from the standards. *See, e.g.*, *Weyerhaeuser*, 590 F.2d at 1057 (citing *Am. Petroleum Inst.*, 540 F.2d at 1036 (denying excursion standards based on "an allowance" of some number of "excessive discharges per year")). That is just a pure exemption, not a "standard." *Id.*

Thus, for the same reasons described in the PRD section above, EPA's exemptions for smoking flares and removal of liability violate the Act's requirement that standards apply at all times and the Act's citizen suit and civil penalty provisions which leave it up to a court, not EPA, to determine whether an uncontrolled release of pollution warrants a penalty. *See supra* Part I.B; *Sierra Club*, 551 F.3d at 1028; *NRDC*, 749 F.3d at 1063-64.

Finally, as for PRDs, none of the requirements EPA promulgated for flares can make the smoking flare exemptions lawful. The exemptions are independent from such requirements, and in essence nullify them during the times when facilities are allowed to smoke uncontrollably without facing a violation or civil penalties.

2. EPA's malfunction exemptions for smoking flares and routed equipment are arbitrary and capricious under the Clean Air Act.

The Rule's exemptions for smoking flares' HAP releases are also arbitrary and capricious within the meaning of the Clean Air Act. 42 U.S.C. § 7607(d)(9). Pursuant to § 7412(d)(2)-(3) of the Clean Air Act, hazardous air pollutant standards must be no less stringent than the average level of emission limitation achieved by the relevant best performing facilities, and must assure the maximum achievable degree of emission reduction for all facilities. *Id.* § 7412(d)(2), (3).

EPA's rationale for allowing flares to release visible smoke emissions that are attributable to unique causes and not the result of operator error, poor design, or a "*force majeure*," up to a maximum of two incidents per flare during a three year period is arbitrary and capricious and violates the Clean Air Act. EPA supports the need for the exemption based on information supplied by the American Petroleum Institute that the average refinery flare experiences a smoking event every 4.4 years. Based on this, EPA assumed that the best performing flares release smoke emissions once every 6 years.

EPA provides no rational explanation based on the administrative record for the malfunction exemption for smoking flares. EPA does not find that, or explain how, such an exemption is needed to fulfill any purpose of the Clean Air Act, or how it is consistent with the Act's requirements. It could not do so for reasons described above; such a malfunction is unlawful and inconsistent with the Act.

Even assuming *arguendo* that it could otherwise do so in limited circumstances, EPA's justification is that the original proposal, flare requirements that apply at all times (*i.e.*, exactly what the law requires), would cause problems because EPA assumes it would lead to the installation of too many new flares. EPA states that "Commenters estimated that 500 new large flare systems at a capital cost in excess of $10-20 billion would need to be built because of the amount of smokeless design capacity that would be needed and that this significant investment would take the industry at least a decade to install." 80 Fed. Reg. at 75,211.

It is unclear what data EPA is relying on – the industry data which has no explanation in the record and appears to be a substantial overestimate, or EPA's own data, which shows much lower costs but still seems to assume that there would be no prevention or reduction of flare emissions when it is likely that applying flare requirements at all times would create a substantial incentive to do just that.

Moreover, creating this type of exemption runs directly contrary to part of the agency's explanation for the actual work practice standards EPA set. As EPA explained, those provisions "will incentivize refinery owners or operators to eliminate the causes of the releases." *Id.* at 75,184; *id.* at 75,208 ("[o]ver time, these proactive measures will reduce the occurrence of releases and the magnitude of releases when they occur"). But it would create even more of an incentive to reduce smoking flares and uncontrolled PRD releases if EPA simply recognized that such uncontrolled releases are prohibited and the flare requirements must apply at all times, as the agency had proposed. And treating one or two exceedances as a non-violation dramatically reduces the incentive to comply with the work practice standards themselves.

There is no doubt that facilities can prevent smoking flares either: (1) by preventing malfunctions in the underlying equipment routed to flares, or (2) installing sufficient flare capacity.

Instead, allowing one to two free passes for smoking flares from each flare at each refinery during every 3-year period directly counters the purpose and effect of both the Clean Air Act's objective to reduce hazardous air pollution from refineries and the specific purpose and effect of the emission standards EPA did put in place for refinery equipment: limiting their pollution. The exemptions will be allowed to have the practical impact of nullifying the actual emission limitations applicable to the connected equipment. There is nothing in EPA's rule that limits a release of pollution from a smoking flare from being higher than a facility's entire day's, week's, month's, or even year's pollution allowance under the overall standards.

EPA has given no reasoned explanation why these requirements are needed or are lawful. The fact that refineries have in the past had smoking flares does not mean that they cannot be prevented or avoided, as EPA's own enforcement records show. EPA calls the exemptions "emergency flaring" provisions, but does not explain why or how an "emergency" has occurred, or how this could justify not applying the usual standards at all times. Further, any such events may be considered by EPA in an administrative setting or the courts in an enforcement case, but even an emergency cannot authorize, up front, a whole range of problematic releases that allow uncontrolled HAP emissions without liability. *See, e.g.*, *Sierra Club*, 749 F.3d at 1064 ("That is a good argument for EPA to make to the courts—and for the courts to then consider—in future civil cases when this issue arises. But it does not suffice to give EPA authority to create an affirmative defense."). Regardless, EPA has not stated this is the basis for its inclusion of the malfunction exemptions, and its decision could not be upheld by an argument it did not make and adequately support in the record.

Finally, EPA's multi-tier approach to the malfunction exemptions for smoking flares is arbitrary and capricious – allowing a second uncontrolled release if it is not from "the same root cause." 80 Fed. Reg.

at 75,244. As the D.C. Circuit explained, creating such a multi-stage complicated assessment to determine if a violation has occurred undermines the purpose of the Act and the ability to enforce it:

> Once excursion provisions are promulgated, an enforcement case no longer turns on the sharply defined issue of whether the plant discharged more pollutant than it was allowed to, but instead depends on murky determinations concerning the sequence of events in the plant, whether those events would have been avoidable if other equipment had been installed, and whether the discharge was within the intent of the excursion provision. Consequently, what Congress planned as a simple proceeding suitable for summary judgments would become a form of inquest into the nature of system malfunction.

Weyerhaeuser, 590 F.2d at 1058. EPA should instead require that all refineries meet the common-sense and well-supported flare requirements at all times, as it proposed, rather than authorizing any smoking flare or "emergency flaring" exemptions for malfunctions.

Additionally, granting refiners a free pass for up to two visible smoke emission events is effectively granting an exemption to each of the requirements that require facilities to reduce emissions routed to flares by 98%. As EPA acknowledges, "smoke in the flare exhaust is an indication of incomplete combustion." 80 Fed. Reg. at 75,215. Even if EPA does not have accurate data on the exact amount of reduced destruction efficiency when there is smoke in the flare exhaust, even small changes can have significant emissions impacts. For example, a 1% decrease in efficiency would result in 50% more emissions and a 2% decrease in efficiency would result in doubling the emissions that would otherwise be released. Furthermore, the exemption for operating flares effectively (and smokelessly) would only apply during the largest events, therefore a 50% increase or a doubling of emissions during a large event could result in a very large release of excess emissions in absolute terms.

Many of the MACT provisions require operators to vent gases from various process units to a flare. For example, the final standards for miscellaneous process vents and gasoline loading racks allow two control options: (1) route the emissions to a flare (which is assumed to have a 98% reduction rate) or (2) route the emissions to a device that reduces HAP emissions by 98%. When these rules were originally promulgated in 1994, EPA believed that flares achieved 98% control when operated correctly and the two options were deemed to be equivalent.[46] After evidence showed that was not true, EPA set the new flare requirements in the Rule to assure flares indeed work as intended and thus the equipment linked to them has its emissions reduced as required by the standards. EPA then, however, exempted certain smoking flares and the equipment linked to them. As a result, EPA's exemption allowing up to two smoking events at each flare within a three-year period is an exemption from the requirements that emissions from certain sources must be controlled by at least that rate.

D. Grounds for Objection to Malfunction Exemptions for Force Majeure Releases from Pressure Release Devices and Flares.

The Final Rule also promulgated another blanket exemption for "*force majeure* events." The PRD and flare rules each define "violation" as <u>not</u> including "*force majeure* events." 80 Fed. Reg. at 75,244-45 (40 C.F.R. § 63.648(j)(3)(v)(B)-(C) (PRD)); *id.* at 75,264-65 (§ 63.670(o)(7) (flares)).

[46] 79 Fed. Reg. at 36,905 ("flare performance tests conducted over the past few years suggest that the current regulatory requirements are insufficient to ensure that refinery flares are operating consistently with the 98-percent HAP destruction efficiencies"); *see also* EPA, *Flare Efficiency Study* [EPA-600/2-83-052] (July 1983), EPA-HQ-OAR-2010-0682-0266.

Because the new *force majeure* exemptions did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). EPA did not give notice, much less propose in any reviewable form on which the public could comment, that the agency would craft such exemptions. It would be a violation of notice-and-comment requirements of the Act to allow this to stand, and thus EPA must grant reconsideration and consider public comment on this issue. *Id.* § 7607(d)(7)(B), (d)(9)(D), § 7607(d)(3), (5), § 7607(h). Further, because these new aspects of EPA's rule authorize uncontrolled releases of pollution through PRDs and smoking flares without triggering any violation or penalty, and undermine the efficacy of the other standards to reduce hazardous air pollution from refineries, this objection is of central relevance.

Thus, reconsideration is required because it was a violation of notice-and-comment requirements to finalize such a change to the rules without notice-and-comment. EPA added these exemptions after the comment period closed, denying petitioners any opportunity to comment on the addition of the "*force majeure*" loopholes. EPA must grant reconsideration and consider public comment on these new malfunction provisions it promulgated in the Final Rule. *Id.* § 7607(d)(9)(D), § 7607(d)(3), (5), § 7607(h). Second, EPA must grant reconsideration because the malfunction exemptions for *force majeure* emissions are unlawful because they contravene the Clean Air Act's requirement that emission limits apply at all times. They are also arbitrary and capricious, as explained below in more detail.

In the Final Rule, *force majeure* events are defined as follows:

> *Force majeure event* means a release of [hazardous air pollutants], either directly to the atmosphere from a relief valve or discharged via a flare, that is demonstrated to the satisfaction of the Administrator to result from an event beyond the refinery owner or operator's control, such as natural disasters; acts of war or terrorism; loss of a utility external to the refinery (*e.g.*, external power curtailment), excluding power curtailment due to an interruptible service agreement; and fire or explosion originating at a near or adjoining facility outside of the refinery owner or operator's control that impacts the refinery's ability to operate.

80 Fed. Reg. at 75,240 (40 C.F.R. § 63.641).

This list exempts certain kinds of malfunctions that are "beyond the … control" of the refinery – most notably the "loss of a utility." But the exemption is not limited even to the list provided. *Id.* The rule uses the term "such as," which could be exploited to include any number of other events that would undermine the effectiveness of the Act and the rule, without any definitional stopping point. This exemption is so broad that it could swallow all of the standards themselves. The only limit on what this means is "the satisfaction of the Administrator." *Id.*

The "*force majeure*" exemption is unlawful and arbitrary under the Clean Air Act. Section 7412 does not allow for any such exemption. EPA is just using new words for the same type of malfunction exemption the D.C. Circuit previously found unlawful; new words do not make it lawful. It creates periods of time when no standard shall apply, and cannot stand under the Act. *Sierra Club*, 551 F.3d at 1028 (no temporal exemptions under §§ 7412, 7602(k)). In attempting to defend its prior exemption for malfunctions, EPA argued at length that an exemption was warranted because malfunctions are not reasonably foreseeable and preventable. That argument was roundly rejected because it is irrelevant under the Clean Air Act, which unambiguously requires continuous compliance with § 7412 standards. EPA's new claim that an exemption is warranted for "force majeure" events is just another version of the agency's unlawful claim that an exemption was warranted for malfunctions, and must be rejected for the same reason: EPA lacks authority to create any exemptions from continuous compliance with § 7412

standards. And, during a "*force majeure*" period of time, there is no applicable § 7412(d) or § 7412(h) emission limitation or standard in place.

Furthermore, by definition, from contracts law, a *force majeure* event is an event that provides a defense to avoid meeting a party's responsibility under a contract. And as the Fifth Circuit has explained, this is a term of art from the context of contracts law that applies only where a party has specifically negotiated and agreed to its use.

> Force majeure is a phrase coined primarily for the convenience of contracting parties wishing to describe the facts that create a contractual impossibility due to an "Act of God." *See* 6 A. Corbin, *Corbin on Contracts*, § 1324 (1962). As Corbin points out, this term is outmoded and serves no useful purpose as a test of responsibility.

Perlman v. Pioneer Limited Partnership, 918 F.2d 1244, 1248 n.5 (5th Cir. 1990). As such, the concept of "*force majeure*" is extra-statutory and *ultra vires*. It does not exist or belong in the context of compliance with a non-contractual federal law, ***i.e.***, the Clean Air Act. Refineries do not have the power to decide whether or not to agree with EPA regulations. They must comply with federal law, including EPA standards, designed to prevent exposure to air pollutants which are hazardous to human health, or face potential liability for non-compliance.

There is no "*force majeure*" exception allowed for non-compliance with the Clean Air Act or its requirements, and EPA may not create such an exemption. "The Clean Air Act and amendments thereto contain no *force majeure* exception." *United States v. Wheeling-Pittsburgh Steel Corp.*, 818 F.2d 1077, 1088 (3d Cir. 1987) (refusing to provide for a free-standing "*force majeure*" exception that would have exempted emission violations that fell outside the contractual term used in a consent decree due to the lack of legal basis to do so). As the D.C. Circuit explained: "After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation." *Weyerhaeuser*, 590 F.2d at 1056. Further, it runs counter to the Act and is unlawful and arbitrary to create such a complicated method to determine whether a violation or a *force majeure* event has occurred. As the D.C. Circuit explained:

> Once excursion provisions are promulgated, an enforcement case no longer turns on the sharply defined issue of whether the plant discharged more pollutant than it was allowed to, but instead depends on murky determinations concerning the sequence of events in the plant, whether those events would have been avoidable if other equipment had been installed, and whether the discharge was within the intent of the excursion provision. Consequently, what Congress planned as a simple proceeding suitable for summary judgments would become a form of inquest into the nature of system malfunction.

Id. at 1058.

The federal Clean Air Act directs EPA to promulgate regulations to meet statutory requirements, here, under § 7412(d) and (f)(2). Injecting contractual principles or negotiating such regulations with a regulated party runs directly counter to the statutory test. These provisions do not say, "regulations that apply unless EPA negotiates a weaker standard with a regulated entity." Similarly, compliance is non-negotiable. Although EPA has discretion to determine which violations to prosecute and what remedy to seek in enforcement cases the agency brings, it may not promulgate an exemption that allows EPA to decide what is a violation, or not, at some future time, in the realm of contracts law.

Further, even where a contract uses a *force majeure* clause, EPA may not arrogate for itself the authority to decide when such an event has occurred. "The burden of demonstrating force majeure is on the party seeking to have its performance excused, … and … the non-performing party must demonstrate its efforts to perform its contractual duties despite the occurrence of the event that it claims constituted force majeure." *See, e.g.*, *Phillips Puerto Rico Core, Inc. v. Tradax Petroleum*, 782 F.2d 314, 319 (2d Cir. 1985). This rule would allow EPA to determine that a *force majeure* event has occurred, such that the exemption applies, rather than requiring a party to prove to a court that such an event has occurred in an enforcement citizen suit. This conflicts with the citizen suit and civil penalty provisions which grant the authority to a court, not EPA, to decide whether a violation has occurred warranting a penalty. *See NRDC*, 749 F.3d at 1064.

EPA gives no reasoned explanation for including each example on the list of the definition for "*force majeure*" events that would qualify for an exemption. It is unclear where EPA came up with this list or why each type of incident is justifiable as an exemption to a Clean Air Act requirement.

Regardless whether a refinery operator could prevent uncontrolled releases, it has taken on the responsibility of attempting to do so by deciding to operate the refinery, and should not be exempted completely for the harm caused by such releases under the Act. In the type of "*force majeure*" event the Final Rule authorizes, there could be extremely high HAP emission releases. The community and the environment will face harm from exposure to those emissions. A refinery takes the risk of facing strict liability for emissions violations by choosing to operate and seeking appropriate operating permits. 42 U.S.C. § 7413(d), (e). The civil penalties available for such violations, if EPA appropriately treated them as such, could provide some remedy for the air pollution a refinery released, even if it was completely out of the refinery's control. For example, such penalties won by a citizen suit may go either into a special fund "to finance air compliance and enforcement activities" that may help to address some part of the pollution, or may "be used in beneficial mitigation projects which … enhance the public health or the environment." *Id.* § 7604(g).

The exemption for any type of power failure is particularly problematic and arbitrary within the meaning of § 7607(d) because losses of power happen often and at the same time are often preventable.[47]

According to one report by Hydrocarbon Publishing: between 2009 and 2013, there were over 2,200 refinery shutdowns or an average of 1.3 incidents per day. Of those:

- Electrical problems were the second-most prevalent issue, accounting for 20.6% of problems occurring at refineries.
- 53% of electrical disruptions at U.S. refineries were due to a loss in power supply from the third party suppliers.
- Over 14% of power disruption incidents were caused by weather events including hurricanes, lightning strikes, and wind.
- Electrical equipment breakdowns accounted for approximately 29% of all power disruptions.[48]

There are numerous management and planning steps refineries can take to prevent disruptions, and resulting emission spikes, and to reduce the harm if they do occur. For example, the Hydrocarbon Publishing report details the following: "prevention and protections devices (e.g. protective relays, circuit

[47] *See, e.g.*, Hydrocarbon Publishing Co., *Refinery Power Outage Mitigations* (Feb. 2014), *available at* http://www.hydrocarbonpublishing.com/ReportP/report13/power.pdf.

[48] *Id.* at 4-5.

breakers, fuses, grounding, surge arrestors, and load shedding) and major electrical equipment (e.g. substations, transformers, switchgears, motor control centers, electric motors, and wiring and cables) by identifying the latest designs and operational practices and analyzing causes of failures and solutions."[49] The report also outlines additional specific measures refineries can and should put in place to prevent and reduce disruptions from power losses, including: electrical equipment reliability improvements; power loss and emergency preparedness plans; onsite power generation, including renewable energy and microgrids; maintenance advances and improved asset and equipment management; as well as ways to improve recovery, restart, and salvage – which reduce the amount of toxic air pollution resulting from excessive flaring or PRD releases – as well as back-up power supply solutions.[50]

EPA could and should have considered ways to prevent and reduce harm from power disruptions as a development within the meaning of § 7412(d)(6) (requiring EPA to strengthen standards accordingly), as Petitioners comments explained. It then should have not only prohibited uncontrolled PRD releases and smoking flares resulting from these, but also required back-up power and other steps as measures in addition to such a prohibition. Instead, EPA went the other direction and promulgated complete exemptions for such events.

EPA even exempts from the root cause analysis, and the corrective action requirements, all releases that are the result of the basic and frequent loss of electrical power. That means that even if a facility routinely and repeatedly has this kind of problem, it will not even be required to see if there is any way to prevent the problem. That is unlawful and arbitrary because a facility can often take action to prevent emissions during such a failure simply by providing for back-up power, as the Hydrocarbon Publishing report explains. A refinery could install a generator, or make a back-up power arrangement, for example, that could enable it to prevent and reduce its PRD releases, if it were required or had any regulatory or penalty incentive at all to do so.[51]

Finally, there is no limit on the definition of the "*force majeure*" exemption EPA has finalized. The definition includes a list, but states that list is not comprehensive. And, like the affirmative defense held unlawful by the D.C. Circuit, *NRDC*, 749 F.3d at 1064, instead of following the Act's limits, EPA unlawfully and arbitrarily arrogates itself the ability to decide "to its satisfaction" whether the "*force majeure*" defense to a violation will apply. The rule provides no criteria or process EPA will use to reach such "satisfaction." The lack of these makes this exemption as broad as EPA wishes, or even as broad as industry chooses to make it – by simply flooding EPA with requests for *force majeure* exemptions or even just citing and taking advantage of this exemption without any actual determination by EPA, or any review of such a determination.

II. EPA MUST STRENGTHEN THE REPORTING REQUIREMENTS AND ASSURE PUBLIC AVAILABILITY OF ALL INFORMATION REGARDING MALFUNCTION EXEMPTIONS WHICH WERE NOT PRESENTED FOR NOTICE-AND-COMMENT.

A. Background on Malfunction Reporting Requirements

EPA set certain reporting requirements for PRDs and smoking flares in the Rule, but they are weak

[49] *Id.* at 5.

[50] *Id.* at 5-13.

[51] *See, e.g.*, Kohler Rental, *Case Studies: Application Oil Refinery*, *available at* http://www.kohlerpower.com/MungoBlobs/975/107/CONACO-09.pdf (example vendor of power protection for refineries).

and will not be sufficient to assure compliance or public accountability of facilities' use of the exemptions. To assure compliance with the Act and the work practice standards EPA has established for PRDs and flares, EPA should strengthen the reporting requirements and assure prompt public availability of information regarding malfunctions and releases from these emission points.

B. Grounds for Objection to Inadequate and Delayed Reporting and Public Availability of Malfunction Emissions Information.

Because EPA's new provisions regarding reporting for malfunction exemptions and new work practice standards for PRDs and emergency flaring did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). EPA did not give notice, much less propose in any reviewable form on which the public could comment, that it would not be requiring sufficient reporting for such incidents. Thus reconsideration is required and it would be a violation of notice-and-comment requirements of the Act not to grant reconsideration and consider public comment on this issue. *Id.* § 7607(d)(7)(B). Further, because these new aspects of EPA's rule authorize uncontrolled releases of pollution without triggering any violation or penalty, it is essential that EPA require sufficient reporting and public availability of information regarding such releases to try to prevent these exemptions from creating a hidden way for sources to avoid compliance with the standards overall.

First, reporting must be more timely and more frequent. EPA, state regulators, and local communities need to know about these releases as quickly as possible so that they can take the necessary protective measures to address malfunctions and emission spikes, and minimize people's exposure to these toxic emissions.

EPA must require facilities to report PRD release events and visible smoke emissions from flares as soon as it is practicable, which is much sooner than the Rule would require. Refineries must be required to submit initial reports to EPA, state, and local regulators within one hour of the start of the event or within one hour of when an operator reasonably should have known of its occurrence. The initial report should identify the unit where the event is occurring, the process unit or units the PRD or flare is associated with, and an initial identification of the likely cause of the event. Further, the rule should require facilities to submit the information required by §§ 63.655(g)(10) and (11) within 30 days of the event. Additionally, operators must be required to report if the specific PRD released emissions or a flare released visible smoke emissions within the past three years and provide references or copies of the prior submitted reports.

Even if any part of EPA's malfunction exemptions could withstand review, which they cannot because they are lawful and arbitrary, *but see* Parts I-II, *supra*, prompt initial and follow-up reporting of PRD releases and visible smoke emissions from flares is necessary to assure that facilities do not escape the Act's requirements through use of the Rule's provisions. The Clean Air Act requires that emission limits include monitoring that is sufficient to assure compliance.[52] Under EPA's Rule, the determination of whether a PRD release or visible smoke event is a violation or exempted depends, in part, on if it was caused by operator error or poor maintenance. Alerting the appropriate state, local, and federal regulatory authorities to gather information to determine whether that was the case is highly time-sensitive. With prompt notification, regulators can determine whether an immediate investigation into the emission event is necessary to determine if a violation has occurred or not. If a violation were to be caused by operator error or poor maintenance, it would be necessary for the regulatory authorities to conduct interviews of necessary personnel at the refinery promptly and review process data and other records that may not be

[52] *See, e.g.*, *Sierra Club v. EPA*, 536 F.3d 673, 673-74 (D.C. Cir. 2008) (citing Title V requirements).

kept on file for long periods of time. Informing the regulatory authorities six months after the event has occurred will make it extremely unlikely, if not impossible, to determine the maintenance conditions leading up to the event or conduct effective interviews of refinery personnel. EPA's stated limitations on the exemptions are virtually meaningless if not enforceable, and thus the delayed and inadequate reporting requirements also provide additional evidence as to why its exemptions are unlawful, arbitrary, and capricious, as discussed above.

Furthermore, it is clear that EPA must require more prompt reporting not only to assure compliance, but also to follow its own stated intention to, at least, match the existing standards in place for some refineries, as well as enact reporting requirements that follow the best-performing facilities. Many refineries in the South Coast AQMD and Texas are already subject to more prompt reporting requirements than the Rule will direct. The South Coast AQMD requires refineries to report PRD releases to the agency within one hour of the start of the release and submit a follow-up report, within 30 days, detailing:

- the PRD type, size, and location;
- date, time, and duration of the release event;
- type of VOC released and individual amounts, in pounds, including supporting calculations;
- cause of the PRD release event; and
- corrective action taken to prevent subsequent PRD release.[53]

In Texas, facilities are required to report emission events, releases that exceed a reportable quantity established by Texas law, within 24 hours of the end of the event and submit a final report within two weeks of the emission event.[54] These reports must provide the source of the emissions, the cause of the emissions, any action that was taken to prevent or reduce the emissions, the type and amount of each compound released, and how the emissions were calculated. Approximately 20% of all refineries are located in these two jurisdictions, therefore these requirements are demonstrative that the best performing facilities report releases much sooner than the requirements EPA finalized.

Finally, EPA must strengthen the public reporting requirements generally – by requiring all malfunction reports to be made public online at the same time or before they are reported to EPA. Shedding light on reports of PRD releases and smoking flares will not only strengthen compliance with and the ability to enforce the Rule itself, but will also provide significant incentive for facilities to avoid such problems in order to avoid public scrutiny and concern from having significant numbers of malfunctions.

III. EPA MUST SET EMISSION STANDARDS FOR ALL POLLUTANTS EMITTED BY REFINERIES AND REMOVE THE SOURCE-TYPE PRD EXEMPTIONS, WHICH ALSO WERE NOT PRESENTED FOR NOTICE-AND-COMMENT.

A. Background on Source-Type Exemptions for Specific Pressure Relief Devices.

EPA proposed to set a standard that would prohibit uncontrolled, atmospheric releases from all pressure relief devices in organic HAP service. 79 Fed. Reg. at 36,912. But EPA did not follow through on that. In the Final Rule, in addition to changing the form of the standard and adding exemptions challenged above, EPA also added source-type exemptions of which it had given no notice in the

[53] South Coast AQMD, Rule 1173(i)(3).

[54] 30 Tex. Admin. Code §101.201.

proposed rule. Specifically, EPA exempted all PRDs in organic HAP service that: (1) have low set pressures, (2) have so-called low emission potential, (3) are in liquid service, and/or have a design pressure release less than 2.5 psig. 80 Fed. Reg. at 75,184.

B. Grounds for Objection to Exemptions for Specific Pressure Relief Devices.

Because these exemptions did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). Reconsideration is required because EPA has violated notice and comment requirements, *id.* § 7607(d)(9)(D), § 7607(d)(3), (5), § 7607(h), and reconsideration is required because this objection is of central relevance as these exemptions will lead to greater emissions than the standard would otherwise allow by completely exempting certain types of PRDs from the standards.

Under § 7412(d), as discussed in *National Lime Association*, EPA must set standards for all emitted pollutants. 233 F.3d at 641. There are no standards that limit HAPs from the PRDs that the Final Rule exempts. Thus, the exemptions are unlawful.

EPA attempts to justify the source-type exemptions by contending that the emissions from such PRDs are small. But there is no small emissions exception to the Act, as the D.C. Circuit explained. *Id.* at 640 ("the statute 'does not provide for exceptions from emission standards based on *de minimis* principles where a MACT floor exists'"). Congress already set the threshold at which EPA must regulate sources as "major" under § 7412(a)(1). For all sources that meet that threshold, EPA may not exempt emission points within that source category from coverage by standards. By attempting to create thresholds within major sources, EPA has violated the Act's plain directive to regulate all HAPs emitted from major sources, without exception.

Further, EPA has well explained this concept in other rules, most recently in the Aerospace Final Rule, as justification for the need to regulate all HAPs emitted. *See* 80 Fed. Reg. 76,152, 76,162 (Dec. 7, 2015) (explaining that Congress carefully delineated volumetric limits that EPA must follow and "a *de minimis* exemption to CAA sections 112(d)(2) and (3) is unavailable because it would frustrate a primary legislative goal by carving out HAP emissions from regulation"). EPA cannot justify treating emission releases at refineries deemed to be small any differently from such releases in other industries, and its exemptions here are thus both unlawful and arbitrary and capricious.

These exemptions are also arbitrary and capricious under § 7607(d)(7)(B) because exemptions in even small amounts can add up. Further, as EPA has recognized, PRDs vary in the amount of HAPs they release depending on how long they are open and other factors. EPA has not shown, based on substantial evidence in the record, that the PRD exemptions it has established will not allow large or dangerous releases of HAPs to occur from equipment routed to PRDs when they exceed their applicable emission standards. Many HAPs emitted by refineries are toxic at extremely low levels, and carcinogens like benzene, have no safe level of human exposure. Setting so many source-type exemptions will undermine the few protections EPA did put in place for PRDs, and expose nearby communities to more dangerous HAPs. This directly contradicts the purpose of § 7412 to require emission standards for all emitted HAPs, without exception, first and foremost to reduce human and environmental exposure to such HAPs – many of which have no safe level of human exposure – by the "maximum degree of emission reduction … achievable." 42 U.S.C. § 7412(d)(2)-(3).

In addition, the source-type exemptions for PRDs are also unlawful because, as discussed in the prior section, such devices link to equipment with applicable standards, and it is unlawful for EPA to create exemptions from those standards by labeling them PRD exemptions.

IV. EPA'S RISK ASSESSMENT AND DETERMINATIONS ARE ARBITRARY AND CAPRICIOUS AND BASED ON DATA AND ANALYSIS NOT PRESENTED FOR NOTICE-AND-COMMENT.

A. Background on EPA's Risk Assessment and Determinations That Residual Risk From Refineries Is "Acceptable" and that No Additional Residual Risk Standards Are "Required."

Section 7412(f)(2) of the Clean Air Act required EPA in this rulemaking to complete an assessment of the risks remaining to human health and the environment with the prior emission standards in place, to decide whether risks are "acceptable" or require additional standards, and to determine whether, even if risks are "acceptable," stronger standards are "required" to provide "an ample margin of safety to protect public health or prevent … an adverse environmental effect." 42 U.S.C. § 7412(f)(2). This provision aims to ensure that, whatever the technology-based emission standards have achieved or EPA has deemed "achievable" (considering cost), EPA must take another look and ensure that standards are in place to protect public health and the environment from dangerous HAPs.

At the time of the proposed rule, EPA stated that it believed that the maximum individual cancer risk was 100-in-1 million, and acute risk was 5 (measured as a hazard quotient). 79 Fed. Reg. at 36,934 & tbl.10. Looking at cancer risk, alone, EPA has a benchmark of 100-in-1 million which it determined in 1989 would be "the presumptive limit of acceptability." *Id.* at 36,939.[55]

Based on this information, and information on other health risks and impacts, EPA proposed that risk would be "acceptable," but "nonetheless solicit[ed] comment on whether the health information currently before the Agency should be deemed unacceptable." *Id.* at 36,940. EPA's proposal indicated agency ambivalence regarding its proposed "acceptable" determination, due to the high cancer risk combined with the other risks found initially. The risk assessment accompanying the proposed rule did not include any assessment of the impacts caused by malfunctions.

In finalizing its action, EPA recognized the need to assess health risks caused by malfunctions that its standards had authorized and would continue to authorize – specifically, what the agency calls "non-routine PRD and flare emissions." 80 Fed. Reg. at 75,187. Thus, in the final risk assessment EPA determined that an additional 2-in-1 million of lifetime cancer risk from inhalation was caused by malfunctions. *Id.* EPA also found that the acute risk would go up to a hazard quotient of 14 as a result of benzene emissions due to acute, non-routine PRD and flare emissions. *Id.* In the Final Rule, however, EPA tried to fudge the numbers – saying that the final cancer risk value was still the same and "does not change" based on new data. *Id.* The agency also stated that "we do not project risks to be significantly different from what we proposed," even though if 100 and 2 are added, the value is 102 – higher than 100-in-1 million. *Id.* at 75,188.

[55] Although that number is too high based on current science, policy objectives, and societal values that have changed since the values-based survey and policy considerations that EPA used to determine this number in 1989, EPA has generally used it as a metric for when residual risk standards are "required" or not under § 7412(f)(2), while recognizing that the agency must work toward achieving the statute's stated level of 1-in-1 million cancer risk as the Act's "aspirational goal." *NRDC v. EPA*, 529 F.3d 1077, 1082 (D.C. Cir. 2008) (citing Benzene Rule, 54 Fed. Reg. 38,044, 38,044-45 (Sept. 14, 1989)). *See* Petitioners' Comments at 90-94, EPA-HQ-OAR-2010-0682-0568 (explaining many ways in which EPA's benchmark is unlawful, out-dated and arbitrary and capricious).

B. Grounds for Objection to EPA's Decision That Risk Is Acceptable Even Though Cancer Risk Is Greater Than 100-in-1 Million and Acute Risk Is 14.

None of these data were available at the time of proposal. At proposal, EPA had not evaluated malfunction-based risks at all. Further, EPA's determination that risk was acceptable even if these higher risks are considered was also not available at the time of proposal, because it had not yet analyzed these risks. Because these data – and importantly, EPA's new determination that risk is "acceptable" and that residual risk standards are not needed for additional emission points (beyond the few units for which EPA did set such standards) even after finding these high additional risks – did not appear in the proposal, it was "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). There was no opportunity to comment, and thus reconsideration is required for all of the same reasons cited for the other issues above. *Id.* § 7607(d)(9). Not granting reconsideration to allow a public comment opportunity on EPA's substantially revised risk assessment and determination would violate the Act's notice and comment requirements. EPA should also grant reconsideration because this objection is of central relevance: the risk numbers EPA finds and its acceptability determination are the agency's central consideration in deciding whether to set standards under § 7412(f)(2) to strengthen health protection.

1. EPA's risk assessment and determinations are unlawful, arbitrary and capricious because EPA has not followed its own policy and guidelines in summing cancer risks and treating a lifetime cancer risk above 100-in-1 million as showing the need for § 7412(f) standards.

EPA found an inhalation-based cancer risk of 100-in-1 million from "routine" emissions, an additional cancer risk of 2-in-1 million from "non-routine" PRD and flare emissions, and an additional cancer risk of 4-in-1 million from non-inhalation (e.g., ingestion) or "multipathway" emissions. 80 Fed. Reg. at 75,187; RRA at 52, EPA-HQ-OAR-2010-0682-0800. Adding at least the inhalation-based cancer risks together would create a total cancer risk of 102-in-1 million. Adding all of these risks together would be 106-in-1 million. In each scenario, the cancer risk would clearly be above EPA's presumptive acceptability threshold of 100-in-1 million. *See* 80 Fed. Reg. at 75,187 (calling 100-in-1 million "the presumptive limit of acceptability"); 79 Fed. Reg. at 36,899 ("an MIR [maximum individual lifetime cancer risk] of approximately one in 10 thousand [*i.e.*, 100-in-1 million] should ordinarily be the upper end of the range of acceptability.").

Yet EPA did not reach a determination to sum these cancer risks, and as a result it did not recognize that the total cancer risk is above the agency's "presumptive limit of acceptability." It also did not determine that additional residual risk standards were required to protect public health from the pollutants EPA recognized as driving risk, such as hydrogen cyanide, benzene, and other carcinogens including HAP metals, as well as other neurotoxins. RRA at 43-49, EPA-HQ-OAR-2010-0682-0800 (listing HAP "drivers" of risk, according to EPA).

There is scientific consensus that carcinogens have no safe level of human exposure and EPA has long recognized this. *See, e.g.*, *NRDC v. EPA*, 824 F.2d 1211, 1215 (D.C. Cir. 1987) (citing 50 Fed. Reg. 46,880, 46,896 (Nov. 13, 1985)). Congress acknowledged this as part of the need to protect public health from cancer-causing air pollution in enacting the 1990 Clean Air Act Amendments. *See* S. Rep. 101-228, at 175, 1990 U.S.C.C.A.N. at 3560 ("Federal Government health policy since the mid-1950s has been premised on the principle that there is no safe level of exposure to a carcinogen").

It is also a basic scientific principle that additional exposure to carcinogens causes additional cancer risk, such that the cancer risks are additive. *See, e.g.*, Cal. EPA OEHHA, Risk Assessment Guidance Manual (finalized Mar. 6, 2015) at 1-5, 2-4, 8-12 ("Cancer risks from all carcinogens addressed in the

HRA [health risk assessment] are added."); "Cancer risks from different substances are treated additively in risk assessment generally, and in the Hot Spots Program in part because many carcinogens act through the common mechanism of DNA damage."). That is, the more carcinogens a person is exposed to, the greater their risk of cancer over their lifetime, and cancer risks should be summed together.

EPA has codified that scientific principle in its own guidelines. *See, e.g.*, RRA at 34, EPA-HQ-OAR-2010-0682-0800 ("To combine risks across multiple carcinogens, our assessments use the mixtures guidelines' [37,38] default assumption of additivity of effects, and combine risks by summing them using the independence formula in the mixtures guidelines.") (citing EPA, *Guidelines for the Health Risk Assessment of Chemical Mixtures*, EPA-630-R-98-002 (1986); EPA, *Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures* at 73, 125 & A-9, EPA-630/R-00-002 (2000)).

EPA's action not to sum these risks and thus recognize that the total cancer risk was indeed higher than "approximately 100-in-1 million" contradicts peer-reviewed science and the agency's own guidelines, and thus is arbitrary and capricious within the meaning of the Clean Air Act.

In particular, EPA had no valid basis not to add each type of cancer risk from inhalation – *i.e.*, from routine and non-routine emissions – which would have led to a total of 102-in-1 million. EPA stated that if these numbers were "added," this "will not appreciably change our proposed determination that the MIR based on allowable emissions are approximately 100-in-1 million." 80 Fed. Reg. at 75,187. But, the facts are otherwise: it would increase the value above 100 – to at least 102. These are the same exact kind of risk, cancer risk from inhalation, just coming from different types of emissions. EPA must grant reconsideration and add these risks together, to follow the science on cancer and its own guidelines, and recognize that cancer risk from inhalation, alone, is <u>above</u> the agency's own "presumptive limit of acceptability," such that stronger standards are required to reduce cancer risks.

EPA provided no reasoned justification in the record for not adding the two kinds of cancer inhalation risks. It did describe the non-routine inhalation cancer risk as a "screening" value. RRA at 52, App. 13, EPA-HQ-OAR-2010-0682-0800. If EPA determines that it cannot directly add the MIR and a "screening" value for additional cancer risk together for some reason, then it still must explain that and must grant reconsideration to create an equivalent non-routine cancer risk number for inhalation that can be added to the MIR. Not doing so, or determining to ignore the additional cancer risk whatever the precise MIR value would be, is arbitrary and capricious. EPA may not rationally ignore the evidence showing the inhalation-based cancer risk is likely above 100-in-1 million by not following its own policy that a number above that benchmark favors finding risks unacceptable. The exact additional amount of cancer risk above 100-in-1 million is not as important as the evidence showing that, indeed, cancer risk from inhalation <u>is</u> above that number.

If EPA had added the multipathway and inhalation risk values for cancer together, the cancer risk total would have been even higher. EPA's attempt to explain why it did not add the multipathway and inhalation cancer risks together, to reach a total of at least 104-in-1 million from routine cancer-causing emissions (or 106, if all inhalation risks were also added), is arbitrary and capricious. EPA recognized that it did not just perform a "screening" analysis, but also did a "refined" analysis. RTC at 50, EPA-HQ-OAR-2010-0682-0802. EPA recognized that it has "previously summed the inhalation and multipathway assessment results (e.g., secondary lead smelters)." *Id.* EPA stated that was for two refined assessments; but here, EPA says it created such a "refined" assessment, so that is not a valid justification.

EPA claims that it only performed the refined multipathway assessment on one facility, and for that facility the sum of multipathway and inhalation risk is less than 100-in-1 million. However, EPA did not provide any evidence that the facility they did the refined multipathway assessment on was that which would be expected to have the highest such risk, or that all other multipathway risks would be lower,

therefore no facility would have a combined risk over 100-in-1 million. Based on the record, which shows that the inhalation risk alone is at least 100-in-1 million, it is unclear how EPA could make this showing. Further, EPA's recognition of the need to sum these risks for the one refined assessment facility illustrates also that it was arbitrary and capricious for it not to combine these risks, in any way, for any other facility.

EPA also has not demonstrated that the most-exposed person, whom the Act directs EPA to consider, 42 U.S.C. § 7412(f), would not experience a high enough inhalation or multipathway risk to tip over the 100-in-1 million benchmark EPA uses. Thus, EPA must add the maximum multipathway risk number of 4-in-1 million with the maximum MIR inhalation number of 100-in-1 million. EPA has not supported its conclusion, based on data in the record, that after analyzing refined multipathway risks for only one facility it can discount the cancer risk for all facilities as it has done here.

EPA's risk determinations – *i.e.*, that risk is "acceptable" and that no additional residual risk standards are required to reduce the risk driver HAPs – are unlawful, arbitrary and capricious under § 7412(f). EPA has failed to provide a reasoned explanation not to sum cancer risks as described above and as its guidelines require. It also has failed to provide a reasoned explanation as to how it cannot acknowledge that the overall cancer risk is plainly well above 100-in-1 million – and more than "approximately" above 100, it is even higher than 101-in-1 million.

Whether viewed in isolation, which is irrational and unjustifiable, or with the other substantial risks EPA found, as the agency recognizes it must do, 80 Fed. Reg. at 75,187, EPA has failed to support its determinations on risk with a reasoned explanation and facts found in the record. Its determinations on risk are particularly arbitrary in view of the large number of people exposed to the high risks found from refineries' toxic air pollution alone: *i.e.*, 5 to 7 million exposed to extra cancer risk above 1-in-1 million; 100,000 exposed to cancer risk above 10-in-1 million, and 83 million people living within 30 miles of refineries facing some additional such risk. RRA at 44, EPA-HQ-OAR-2010-0682-0800. EPA also found that, based on inhalation of refinery pollution, alone, the cancer incidence for local communities will be 1 extra cancer case about every 1.5 years, further demonstrating the unacceptability of this risk. *Id.* at 42.

Further, EPA has acknowledged that the people disproportionately exposed to these high risks are people of color and low-income people. EPA did not provide any rational explanation why the unfair distribution of this risk does not tip the scale to lead it to find risks unacceptable or to require additional protections to assure an ample margin of safety to protect public health for all people exposed.

And, EPA's dismissal of the high risk numbers it found is particularly problematic and arbitrary when even these already-high numbers are based on underestimates of both emissions and exposures, as previously explained in Comments. *See* note 31, *supra*.

Moreover, EPA's analysis stands in contrast to other recent rulemakings, like secondary lead smelting and ferroalloys, where EPA has recognized risks are unacceptable and set residual risk standards based on a similar set of risks found here. *See* RTC at 50, EPA-HQ-OAR-2010-0682-0802. Although EPA states that this is a "holistic" analysis, and that each risk assessment and determination must stand alone, that justification (that this situation is somehow different) does not explain why it has decided the high risks and population distribution of those risks for refineries is not enough to require action under § 7412(f) in view of the action EPA took for other source categories which are quite similarly situated. Regardless, citing the broad discretion EPA arrogates to itself under § 7412(f) as reason not to set stronger standards here, when the risks are so high, is no answer to the millions of people living near oil refineries whom EPA has chosen to deny protection equivalent to that it has provided for people living near other major air toxics sources.

EPA's decision not to recognize that the refinery rule risks are unacceptable is also problematic and arbitrary in view of the Second Integrated Urban Air Toxics Report (2014) which recognized that urban hot spots continue to have high cancer and other health risks, well above 100-in-1 million. Unless EPA reduces exposure from high-risk source categories like refineries, EPA will not fulfill its own commitments to reduce those high impacts and risks, particularly for over-exposed urban communities.[56]

2. EPA's risk assessment and determination are unlawful, arbitrary, and capricious because they are based on internally contradictory findings that, although acute risk is high, it will rarely occur.

In the Final Rule, EPA also found a high acute risk – a hazard quotient of 14 – due to benzene emissions resulting from "non-routine PRD and flare emissions." 80 Fed. Reg. at 75,187. EPA decided not to consider this number sufficient reason to tip the acceptability determination to "unacceptable," however, in great part because it determined that "the likelihood of such exposure and risk are low." *Id.* Its own record findings directly contradict that conclusion. Because the likelihood of exposure and how many people may face this exposure is both a function of the frequency of occurrence at any individual refinery and the high number of refineries that are likely to have "non-routine" or malfunction emissions, near people, EPA's rulemaking record contradicts its conclusion that such exposure and risk are low.

As the record shows, EPA believes the malfunction or so-called "non-routine" emissions actually occur quite often: on average, every 4.4 to 6 years at all refineries. *Id.* at 75,211. EPA found "a probability of 16.7-percent of having an event in any given year," and that "over a long period of time such as 20 years, half of [the] best performers would have 2 events in a 3 year period." *Id.* As a result, EPA's standards actually authorize such events even more often. Specifically, EPA allows non-routine emissions from PRDs and flares to occur, without any standard or violation, once or twice every 3 year period. Thus, not only does the record show that EPA recognizes that emission spikes from PRDs and flares are a frequent occurrence, and the Final Rule allows them to be frequent. In view of these facts, EPA cannot conclude that these high risks or exposure to them is low, as the agency did. Reconsideration is required to recognize that these risks are frequent in space and time (*i.e.*, they occur frequently at an individual facility and also happen at various facilities affecting millions of people according to EPA's risk assessment). The high acute risk thus provides good reason to tip the balance in favor of finding health risks are "unacceptable" under § 7412(f)(2), and EPA's decision to discount it is arbitrary.

To try to justify its determination to discount the high acute risk, EPA also noted that it could determine the hazard quotient in a different way, and produce a different result. In particular, EPA reached the hazard quotient of 14 based on the reference exposure level (REL) for benzene, which is designed to protect human health for people in a nearby community. EPA noted that it could use a different level – an "acute exposure guideline level" (AEGL) or "emergency response and planning guideline" level (ERPG) and come up with a lower number. That justification is also arbitrary and capricious. Those numbers are designed to be used primarily in a true emergency, and not to set health-protective standards that will apply generally at all times. The AEGL values, unlike the REL, do not incorporate any consideration of vulnerability, such as for children, or community exposure over time.

The AEGL and ERPG values are designed only for emergency exposure scenarios and responses – and cannot be considered health-protective enough to govern a national emission standard for hazardous air pollutants. These levels are defined for "once-in-a-lifetime, short-term exposures" and "emergency"

[56] *See* EPA, Second Integrated Urban Air Toxics Report (Aug. 21, 2014) and accompanying maps and data on high-risk areas, *available at* http://www.epa.gov/urban-air-toxics/second-integrated-urban-air-toxics-report-congress; *see also e.g.*, 64 Fed. Reg. 38,706 (July 19, 1999).

chemical releases or accidents. *See, e.g.*, 76 Fed. Reg. 52,738, 52,772 (Aug. 23, 2011). As such, they are not appropriate tools to measure long-term, lifetime acute exposure risk, or determine whether such long-term potential exposure is acceptable.

In risk assessments, acute exposure risks (even if they happen more than once) are appropriately assessed as if they are all individual events. The harm that would occur under an AEGL or ERPG is so severe that they may not reasonably be used for residual risk assessments where the objective is to prevent the type of severe acute harms through source emission regulation. Those values thus act as indicators of strong danger, just as smoke detectors are designed to measure levels of smoke that give warning before someone is passed out from asphyxiation or burned. But such indicators, alone, do not prevent that severe harm; they just recognize it is occurring. The way to ensure appropriate health protection is to prevent the fire in the first place by using a health-protective value like the REL.

As the Science Advisory Board has explained:

> The incorporation of the available California Reference Exposure Levels (RELs) for the assessment of acute effects is a conservative and acceptable approach to characterize acute risks …. The Panel has some concern with the use of the Acute Exposure Guidelines Limits (AEGLs) and Emergency Response Planning Guidelines (ERPGs) …. AEGL-2 and ERPG-2 values should never be used in residual risk assessments because they represent levels that if exceeded could cause serious or irreversible health effects.

Sci. Adv. Bd., Review of EPA's draft entitled, "Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies – MACT I Petroleum Refining Sources and Portland Cement Manufacturing," EPA-SAB-10-007 at 6 (May 07, 2010)) ("SAB May 2010"), EPA-HQ-OAR-2010-0682-0103 (emphasis added).

Thus, use of the AEGL and ERPG numbers would be expected to substantially underestimate risk. Using these numbers is likely to discount or cloak the level of risk to the maximum exposed individual. These values are therefore not appropriate for EPA to rely on as health-protective in a section 7412(f)(2) residual risk analysis. They simply do not provide sufficient protection for health.

EPA's risk determinations – acceptability and ample margin – are thus arbitrary and capricious because they are grounded in a decision to discount a high acute risk value as rare or low, when in fact EPA's own analysis shows the contrary.

V. THE NEW REQUIREMENTS FOR "WATER OVERFLOW" DELAYED COKER OPERATIONS ARE UNLAWFUL, ARBITRARY AND CAPRICIOUS, AND WERE NOT PRESENTED FOR NOTICE-AND-COMMENT.

EPA's Final Rule allows refineries using the "water overflow" method of delayed coking to drain water from the coke drum to an overflow water storage tank before the internal temperature within the vessel is below 220^0F. 40 C.F.R. § 63.657(e). EPA attempted to justify the use of the water overflow method for delayed coker units (DCU) by stating "that this design has some unique advantages to traditional DCU to effect better cooling of the coke drum." 80 Fed. Reg. at 75,214-15.

As discussed in more detail below, these changes will allow refiners to release significant amounts of excess HAP from delayed cokers making this objection of central relevance. Further, these changes did not appear in the proposal, making it "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). Thus, EPA has violated the Act's notice-and-comment requirements, and reconsideration is required.

EPA had proposed to prohibit refiners from draining water from any type of delayed coker unless the internal pressure of the vessel is less than or equal to 2 psi for existing units and 2.0 psi for new and modified units. 79 Fed. Reg. at 36,977. These limits would then restrict the amount of HAP-laden steam that is released to the atmosphere when the water from the coke drum is drained. EPA-HQ-OAR-2010-0682-0202, at 8-9. EPA determined that this HAP-laden steam is the primary source of emissions from delayed cokers. *Id*. at 4-8. Further, EPA determined that it is important to restrict operators from draining water from the coke drum before internal pressure is below the applicable PSI limit because the water would be superheated and once drained from the coker would convert to steam and release substantial amounts of HAPs. 79 Fed. Reg. at 36,902; *see also* RTC at 197-98, EPA-HQ-OAR-2010-0682-0802.

EPA's Final Rule backtracks on that limitation, however, and will allow cokers to operate cokers using a "water overflow" method. Under the rules EPA finalized, facilities will be able to drain water to an open tank or storage vessel using a submerged fill pipe no matter how hot the water is or what potential it has to convert to steam and release HAP emissions. 40 C.F.R. § 63.657(e). EPA states two justifications for this change: (1) "we find that [the water overflow] design has some unique advantages to traditional DCU to effect better cooling of the coke drum," and (2) the superheated water will be cooled within the tank and the emissions that would otherwise be emitted from the conventional drain can be prevented. 79 Fed. Reg. at 75,215.

Section 7412 (d) of the Clean Air Act requires that EPA set a standard for existing delayed cokers that matches the average emission limitation achieved by the best performing 12 percent of facilities, for new sources based on the best single performing source, and for all, EPA must assure the maximum degree of emission reduction that is "achievable." 42 U.S.C. § 7412(d)(2)-(3). EPA has failed to meet these requirements.

The rationale that EPA has provided for allowing facilities operate cokers using the "water overflow" method has no relationship to the Act's stringency test, and the agency has not even attempted to comply with that test, though it has conceded that the test is applicable for DCU standards as a general matter.

EPA has given no reasoned justification for applying a different test to units using the "water overflow" method instead of another method or shown how this could be consistent with the Act. The Act does not allow the weakening of standards to serve a facility's preferences in this way. EPA has not met and could not meet the Act's test for subcategorization of a source category, or treatment of different DCUs differently based on their use of particular methods. The Act allows EPA only to "distinguish among classes, types, and sizes of sources within a category or subcategory in establishing [emission] standards," not to distinguish between the same type of source, such as a DCU, based on different methods it may use, water overflow or some other method. *See, e.g.*, 42 U.S.C. § 7412(d)(1).

Further, EPA's addition of the "water overflow" method is arbitrary and capricious. EPA has not provided any reasoned explanation as to which way the "water overflow" method is advantageous for emission control, or if the advantage relates to emissions reductions at all. EPA has simply stated in a conclusory way, without record support, that some of the emissions increase that results from draining delayed cokers earlier will be offset by some amount emissions reduction when the coker is ultimately drained conventionally. Beyond this statement, there is no technical analysis regarding the quantity of emissions that would be released from the overflow water or how much emissions EPA expects would be offset. As a result, EPA's change is not supported by the record and is arbitrary and capricious.

To address this issue, EPA should either remove this change or require facilities that choose to operate a coker using the water overflow method to drain the overflow water to a controlled fixed roof storage tank that is vented to a control device that achieves 98% destruction efficiency or better.

VI. EPA'S NEW PROVISIONS ALLOWING REFINERIES TO REDUCE THE FREQUENCY OF FENCELINE MONITORING ARE ARBITRARY AND CAPRICIOUS AND WERE NOT PRESENTED FOR NOTICE-AND-COMMENT.

EPA must grant reconsideration and remove the step-down provision for fenceline monitoring requirements. EPA's Final Rule added provisions to allow refineries to reduce the frequency of fenceline monitoring at each sampling station on the fence line of a facility that consistently records a benzene concentration below 0.9 $\mu g/m^3$ (or ten percent of the corrective action threshold for a set period of time). 80 Fed. Reg. at 75,255. After the first two years, a facility can reduce monitoring to once a month, after another two years the facility can reduce monitoring to quarterly, and so on until monitoring is only required to be conducted once a year. 40 C.F.R. § 63.568(e)(3).

EPA's original proposal did not include any such provision. This change is of central relevance to the rule because the allowance to step down monitoring frequency will undermine EPA's goal of for "providing the necessary assurance that the emission control levels for these sources are achieved." RTC at 209, EPA-HQ-OAR-2010-0682-0802; *see also* 79 Fed. Reg. at 36,923. Further these changes did not appear in the proposal, making it "impracticable" to object to them during the public comment period within the meaning of Clean Air Act § 307(d)(7)(B). 42 U.S.C. § 7607(d)(7)(B). The public had no notice or opportunity to comment, as required, on the step-down provision.

First, a little background on EPA method 325A and the original proposal is necessary. Under method 325A, facilities are required to establish monitoring stations around the perimeter of the facility. 40 C.F.R. Subpart 63, Appendix A, 2.1.1; *see also* 79 Fed. Reg. at 36,923. The stations would be established to ensure that there would be some upwind and some downwind monitors in most if not all wind conditions. 79 Fed. Reg. at 36,923. Under the original proposal, facilities would have been required to collect 14-day average samples from each monitoring site every 14 days. *Id*. Using the sampling data, EPA required facilities to calculate the refinery's impact on the fenceline concentration using the change in concentration (Δc) calculation. *Id.* at 36,925. Pursuant to the proposal, this value was to be calculated by subtracting the highest measured fenceline concentration from the lowest measured fenceline concentration for each monitoring period. *Id*. Effectively, the lowest measured fenceline concentration would serve as a proxy for the background concentration at the facility and subtracting this value from the highest reading aimed to provide a good approximation of a refinery's contribution to the benzene concentration at the fenceline.

The change in the Final Rule, allowing facilities to reduce or step down their monitoring frequency is arbitrary and capricious for the following reasons.

First, EPA has not explained or evaluated how reducing the frequency of monitoring at monitoring stations that register low levels of benzene will impact the calculation of the Δc value. As explained above, the samplers that register low levels of benzene are equally important as those that register high levels of benzene because both are needed to calculate a facility's impact at the fenceline. The Final Rule will now permit facilities to reduce the frequency of monitoring at monitors that are needed to determine the background concentration. This will raise the lowest concentration measured during most monitoring periods. Most likely, the monitors that qualify for the reduced frequency monitors will be the upwind monitoring stations that are necessary to determine the background benzene concentration. Therefore, using the lowest measured value is much more likely to include emissions contributions from the refinery,

reducing the effectiveness of the Δc calculation for determining the refinery's contribution to the fenceline concentration.

In support of the change, EPA has simply stated that "there will be cases where 'upwind monitors' may consistently monitor low levels of benzene and may not be necessary in the long term." RTC at 243, EPA-HQ-OAR-2010-0682-0802. This reasoning and EPA's decision to reduce fenceline monitoring requirements for facilities that reach low readings at some points in time conflict with the core purpose of the important fenceline monitoring provisions – to monitor and manage fugitive emissions and assure compliance with the emission standards at complex facilities where EPA and refineries may miss dangerous HAPs to which they are exposing local communities. 80 Fed. Reg. at 75,182, 75,197; *see also* 79 Fed. Reg. at 36,919-20 ("we remain concerned requiring the potential for high emissions from these fugitive sources" and thus "we believe that it is appropriate under CAA section 112(d)(6) to require refiners to monitor, and if necessary, take corrective action to minimize fugitive emissions, to ensure that facilities appropriately manage emissions of HAP from fugitive sources"); 79 Fed. Reg. at 36,934 (noting that EPA found cancer risks are "driven by emissions of benzene and naphthalene from refinery fugitives"). Thus, EPA stated that it set the fenceline monitoring requirements' corrective action level for benzene at a level "that is consistent with the emissions projected from fugitive sources compliant with the provisions of the refinery MACT standards as modified by the additional controls … in this action." 79 Fed. Reg. at 36,920. Reducing the monitoring frequency will make it more likely that higher emission spikes will be missed and directly undermine the reason why monitoring is needed.

Further, EPA's rationale for the step-down provision does not reach the issue of how reduced frequency monitoring for upwind monitors that are the best measure of background benzene concentrations will impact the method's ability to determine a facility's contribution to concentrations at the fenceline. Therefore, allowing reduced frequency of monitoring is arbitrary and capricious and should be removed from the Final Rule. If EPA retains the reduced frequency monitoring provisions over petitioner's objections, EPA must require facilities that opt to use this option to assume that the lowest reading for each sampling period is zero when calculating the Δc value.

Second, the threshold that monitoring stations must meet to qualify for reduced frequency monitoring is arbitrary and capricious. EPA's Final Rule will allow facilities to reduce the monitoring frequency at stations that consistently register below 0.9 $\mu g/m^3$. 40 C.F.R. § 63.568(e). EPA selected this value on the basis that it "is 10% of the action level and approximates the benzene background concentrations [] observed in pilot studies." RTC at 243, EPA-HQ-OAR-2010-0682-0802. EPA has not explained or tried to justify why reduced monitoring is appropriate at monitoring stations that consistently register 10% below the action level. At 10% of the corrective action level, more than 25% of refineries would qualify for reduced frequency monitoring at all of their fenceline monitoring stations even if the benzene concentration at the fenceline were 10 times higher than EPA modeled. Allowing these facilities to reduce the frequency of monitoring even when the benzene measured at the fenceline exceeded the amount EPA modeled by ten times is arbitrary and capricious because it would defeat the purpose of the fenceline monitoring program which is to assure compliance with the fugitive emission standards applicable to refineries.

The 0.9 $\mu g/m^3$ threshold is also arbitrary and capricious because EPA has not provided any evidence in the record to support its statement that this is about the approximate benzene background concentration. The annual average concentration from 8 monitors in Texas for 2015 was 0.822 $\mu g/m^3$.

Table A: Annual Ambient Benzene Concentrations in Texas (2015).[57]

Site	Region	2015 Avg. ($\mu g/m^3$)
Clinton	Houston-Galveston-Brazoria	1.0002
Beaumont-Downtown	Beaumont-Port Arthur	0.7366
Cesar Chavez	Houston-Galveston-Brazoria	0.9533
Corpus Christi Palm	Corpus Christi-Victoria	0.6695
Hou.DeerPrk2	Houston-Galveston-Brazoria	1.1873
Odessa Hays	Odessa-Midland	1.1356
Chamizal	El Paso-Juarez	0.9
Dallas Hinton St.	Dallas-Fort Worth	0.4662
Floresville Hospital Blvd	San Antonio	0.3507
Average		**0.822155556**

While this is close to EPA's number, the data include 5 monitoring stations in Houston, the heart of the petroleum refining industry in the United States, and are expected to have substantially higher benzene concentrations as compared to other localities. Thus, both the step-down allowance and the level at which it can occur are arbitrary and capricious.

Finally, the provision would provide an incentive for refineries to try to game the monitoring requirements to measure low readings in order to be able to escape monitoring and reporting of benzene concentrations, and thus escape compliance and enforcement of the standards. EPA has not explained how its provision would prevent this. The less monitoring required, the fewer monitoring data EPA, state regulators, and the public would have available to view, and the less likely the few monitored readings would actually reflect a facility's performance, over time. The smaller the dataset, the less representative, the less accurate, and the less reliable it is. *See, e.g.*, *Nat'l Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1161 (D.C. Cir. 2013) (remanding EPA's use of limited dataset to promulgate standards, due to a lack of reasoned explanation of how it could determine "whether a limited dataset is representative of incinerators for which it has no data, and to explain why it chose the variables it did for that statistical analysis"). Thus, Petitioners urge EPA to grant reconsideration and remove the step-down provision from the Rule. EPA should, at least, require monitoring for the full 8-year period of time provided for § 7412 rule reviews, before it determines whether reduced monitoring may be appropriate, and if so, in what form, after reviewing monitoring data, compliance, and community impacts over time.

VII. CONCLUSION

For the foregoing reasons, Petitioners respectfully request that EPA grant reconsideration and issue a new final rule that reduces community exposure to hazardous air pollution and strengthens protections for public health in the Rule. We have provided documents cited in this petition as an Appendix on an accompanying disc and would welcome the chance to speak with you and the rule team about this matter at EPA's convenience. For additional information or to arrange a meeting, please contact Emma Cheuse at (202) 745-5220 or echeuse@earthjustice.org.

[57] *See* Microsoft Excel File Created by EIP Labeled Texas Ambient Data (Data include in Appendix).

Thank you for your attention to this important matter.

Sincerely,

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LIST OF APPENDIX DOCUMENTS ACCOMPANYING THE PETITION FOR ADMINISTRATIVE RECONSIDERATION SUBMITTED BY AIR ALLIANCE HOUSTON, CALIFORNIA COMMUNITIES AGAINST TOXICS, CLEAN AIR COUNCIL, COALITION FOR A SAFE ENVIRONMENT, COMMUNITY IN-POWER & DEVELOPMENT ASSOCIATION, DEL AMO ACTION COMMITTEE, ENVIRONMENTAL INTEGRITY PROJECT, LOUISIANA BUCKET BRIGADE, SIERRA CLUB, TEXAS ENVIRONMENTAL JUSTICE ADVOCACY SERVICES, AND UTAH PHYSICIANS FOR A HEALTHY ENVIRONMENT

(FEBRUARY 1, 2016)

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