[ORAL ARGUMENT HAS NOT BEEN SCHEDULED]
No. 22-1070

In the United States Court of Appeals
for the District of Columbia Circuit

GPA MIDSTREAM ASSOCIATION,
Petitioner,

v.

U.S. DEPARTMENT OF TRANSPORTATION & PIPELINE and HAZARDOUS MATERIALS SAFETY ADMINISTRATION,
Respondents.

MOTION OF ENVIRONMENTAL DEFENSE FUND TO INTERVENE IN SUPPORT OF RESPONDENT

Environmental Defense Fund (EDF) hereby moves to intervene in the above-captioned petition in support of Respondents U.S. Department of Transportation and Pipeline and Hazardous Materials Safety Administration (PHMSA), pursuant to this Court's Rule 15(b). Petitioner seeks review of PHMSA's final action published as *Pipeline Safety: Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments*, 86 Fed. Reg. 63,266 (Nov. 15, 2021) (Final Rule).

This Court should grant leave to intervene. *First*, EDF's motion is timely. *Second*, EDF possesses direct and vital interests in the Final Rule—interests that the disposition of any petition for review of the Final Rule may impair or impede. *Third*, no existing party adequately represents the interests of EDF in this litigation.

Respondents do not oppose this motion, and Petitioner takes no position.

BACKGROUND

A. Natural gas gathering pipelines

Natural gas gathering pipelines transport unprocessed natural gas from production areas like well sites to facilities where the gas can be processed. Historically, gathering lines were a small fraction of pipeline mileage. Final Rule at 63,268. They were primarily located in sparsely populated areas and operated at low pressures with small diameters, and thus were viewed as posing a relatively low safety risk. *Id.* But the recent boom in unconventional shale drilling and hydraulic fracturing prompted a significant buildout of gathering lines, with increased pipeline mileage, diameter, pressure, and proximity to human habitation. *Id.* at 63,268–69.

This has proven dangerous. Routine gathering line leaks emit methane, an extremely potent greenhouse gas;[1] as well as ozone-contributing volatile organic compounds and hazardous air pollutants, exposure to which is associated with respiratory harm and cancer.[2] And beyond everyday leaks, gathering lines may rupture or fail altogether, generating atmospheric pollution[3] as well as fires or explosions that can kill people, melt highways, and lead to evacuations, Final Rule at 63,272.

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[1] Declaration of David Lyon ¶¶ 3, 13.
[2] Lyon Decl. ¶ 11; Declaration of Dr. Tammy Thompson ¶¶ 3–6; 20–21.
[3] *See, e.g.*, Lyon Decl. ¶¶ 6–7.

B. Statutory and regulatory background

Federal law directs PHMSA to "prescribe minimum safety standards" for pipelines to meet the need for "gas pipeline safety" and "protecting the environment." 49 U.S.C. § 60102(a)(2), (b)(1). This directive applies to gathering lines, as Congress in 1968 authorized the Department of Transportation to regulate non-rural gas gathering lines, *see* Natural Gas Pipeline Safety Act of 1968, Pub. L. 90-481, 82 Stat. 720 (1968), and in 1992 authorized the regulation of *all* gathering lines, *see* Pipeline Safety Act of 1992, Pub. L. 102-508, § 109, 106 Stat. 3310 (1992).[4]

By 2006, the agency had defined and set minimum safety standards for a limited subset of regulated gas gathering lines—those in close proximity to densely populated areas. *See* Final Rule at 63,270. But the vast majority of gathering lines remained federally unregulated, with PHMSA by 2001 regulating fewer than 12,000 miles of over 435,000 total miles of lines.[5] Congress devoted renewed attention to this issue in 2011, directing the Secretary of Transportation to review the sufficiency of existing laws and regulations to ensure the safety of gathering lines. *Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011*, Pub. L. 112-90, § 21, 125 Stat. 1904 (2012).

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[4] This regulatory authority was initially delegated to the Department of Transportation's Office of Pipeline Safety, and subsequently delegated to PHMSA when it was created by Congress in 2004. *See* Pub. L. 108-426, § 108, 118 Stat. 2423.

[5] PHMSA, *Final Regulatory Impact Analysis, Pipeline Safety: Expansion of Gas Gathering Regulation Final Rule* at 3 (Nov. 2021), https://www.regulations.gov/document/PHMSA-2011-0023-0488.

In response, in 2015, the Secretary of Transportation informed Congress the agency was considering proposing additional regulations.[6] Meanwhile, Congress continued to receive information underscoring the problem.[7]

C. The Final Rule

And PHMSA took action. In 2016, following up on an advance notice, PHMSA issued a notice of proposed rulemaking that sought to significantly expand oversight of gathering lines, with a particular focus on reporting requirements and safety standards. PHMSA, *Notice of Proposed Rulemaking: Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines*, 81 Fed. Reg. 20,721, 20,723 (Apr. 8, 2016). It proposed regulating gathering lines in rural areas with a diameter of 8 inches or greater and a high operating pressure, and requiring operators of all unregulated gathering lines to submit annual, incident, and safety-related conditions reports. *Id.* at 20,802–803; 20,807.

EDF and others submitted supportive comments. "[I]f adopted and enforced," EDF explained, the proposal would "represent a win-win for public

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[6] *See* Letter from Secretary Foxx to Congressional Leaders (May 8, 2015) (transmitting Oak Ridge National Laboratory, *Review of Existing Federal and State Regulations for Gas and Hazardous Liquid Gathering Lines* (Sept. 4, 2013)), https://perma.cc/KF9Y-U9L3.

[7] *See, e.g.*, Report # GAO-14-667, *Dep't of Transp. is Taking Actions to Address Rail Safety, but Additional Actions are Needed to Improve Pipeline Safety* at 47–48 (Aug. 2014), https://perma.cc/BG26-879K (finding that PHMSA "regulation has not kept pace with the changing oil and gas transportation environment," and recommending the agency address gathering line safety and expand oversight of unregulated lines).

safety and environmental protection."[8] Congress likewise encouraged the agency's progress. In the bipartisan PIPES Act of 2020, it directed PHMSA to "issue a final rule" regulating gathering lines by March 27, 2021. Consolidated Appropriations Act of 2021, Pub. L. 116-260, § 112(a), 134 Stat. 1182 (2020).

The agency proceeded to publish the Final Rule in the Federal Register on November 15, 2021, taking effect May 16, 2022. The Final Rule creates a new category of regulated gas gathering line, Type C, consisting of over 90,000 miles of rural gathering lines with an outer diameter of 8.625 inches or greater that operate at higher stress levels or pressure. Final Rule at 63,268. It requires emergency planning and damage prevention programs for all Type C lines; and over 20,000 miles of pipelines must meet corrosion control, leak survey, and other standards depending on their diameter and location.[9] The rule also establishes reporting standards for all gathering lines (and designates as Type R lines that are subject to reporting but otherwise remain formally unregulated). Owners and operators of all gathering lines must file annual and incident reports to collect "data about the state of gas gathering infrastructure" and to facilitate monitoring safety performance and determining "the need for future regulatory changes to address the risks to the

[8] Comment of EDF on PHMSA NPRM: *Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines*, 81 Fed. Reg. 20721 (Apr. 8, 2016), (July 7, 2016), https://www.regulations.gov/comment/PHMSA-2011-0023-0351.

[9] Final Regulatory Impact Analysis at 15.

public, property, and the environment posed by all types of pipeline systems engaged in the transportation of gas." Final Rule at 63,268.

D. Administrative challenges to the final rule

Pursuant to 49 C.F.R. § 190.335, on December 15, 2021, GPA Midstream and the American Petroleum Institute sought administrative reconsideration and an administrative stay of the Final Rule, arguing for modifications tempering the rule and a multi-year delay in its compliance deadlines.[10] PHMSA denied both applications on April 1, 2022.[11] The Final Rule, it explained, was the "culmination of a decade-long effort" to ensure "common-sense" reporting and safety measures applied to gathering lines "that had previously escaped" any "meaningful" regulation.[12] That effort had included thorough cost-benefit analysis and close

[10] *See* GPA Midstream & API, *Petition for Reconsideration of Final Rule Safety of Gas Gathering Pipelines*, PHMSA-2011-0023 (Nov. 15, 2021), (Dec. 15, 2021), https://www.regulations.gov/document/PHMSA-2011-0023-0493; GPA Midstream & API, *Motion to Stay Final Rule*, PHMSA-2011-0023, at 1–2 (Dec. 15, 2021) https://www.regulations.gov/document/PHMSA-2011-0023-0492. EDF submitted an opposition to both requests. *See* Opposition of Environmental Defense Fund to API/GPA's Petition for Reconsideration and Motion for Stay of the Final Rule, PHMSA-2011-0023 (Mar. 30, 2022), https://www.regulations.gov/comment/PHMSA-2011-0023-0501.

[11] Deputy Administrator Tristan Brown, PHMSA, Response to Petition for Reconsideration of Final Rule, "Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments" (2137-AF38), PHMSA-2011-0023 (Apr. 1, 2022), https://www.regulations.gov/document/PHMSA-2011-0023-0504 (PHMSA Denial).

[12] PHMSA Denial at 11.

consulting with technical experts on an advisory committee.[13] The result was an approach carefully calibrated to the "magnitude of risk" posed by different lines.[14] The agency also clarified several components of the Final Rule in response to the associations' concerns.[15]

Nonetheless, API filed an administrative appeal with the agency on April 30, 2022.[16] GPA Midstream filed this petition for review on May 2, 2022.

STANDARD FOR INTERVENTION

A party may intervene in an action as of right or permissively. Fed. R. Civ. P. 24(a) & (b); *Mass. Sch. of Law at Andover, Inc. v. United States*, 118 F.3d 776, 779 (D.C. Cir. 1997) (applying Rule 24 to "interventions solely for purposes of appeal").

To intervene as of right under Rule 24 (or, as here, Federal Rule of Appellate Procedure 15(d)), a party must show that (1) its motion to intervene was timely; (2) it has an "interest relating to the property or transaction which is the subject of the action"; (3) it "is so situated that the disposition of the action may as a practical matter impair or impede" the party's "ability to protect that interest"; and (4) the party's

[13] PHMSA Denial at 2, 3–11.

[14] PHMSA Denial at 12.

[15] PHMSA Denial at 2–3; *see also* PHMSA, *Pipeline Safety: Response to a Petition for Reconsideration; Technical Corrections; Issuance of Limited Enforcement Discretion*, 87 Fed. Reg. 26,296 (May 4, 2022).

[16] *See* API, Appeal of Decision Denying Petition for Reconsideration (April 30, 2022), PHMSA-2011-0023-0509, https://www.regulations.gov/document/PHMSA-2011-0023-0509.

interest must not be "adequately represented by existing parties" to the action. *Fund for Animals, Inc. v. Norton*, 322 F.3d 728, 731 (D.C. Cir. 2003).

In addition, because an "intervenor seeks to participate on an equal footing with the original parties to the suit," a party seeking to intervene as of right must demonstrate that it has standing to sue. *Fund for Animals*, 322 F.3d at 731–32. An organization may invoke associational standing to defend agency action on its members' behalf when "(1) at least one of its members would have standing to [defend] in his or her own right; (2) the interests it seeks to protect are germane to the organization's purpose; and (3) neither the [defense] asserted nor the relief requested requires the participation of individual members in the lawsuit." *Hearth, Patio & Barbecue Ass'n v. EPA*, 11 F.4th 791, 802 (D.C. Cir. 2021).

STATEMENT OF INTEREST AND STANDING

EDF's strong interest in the disposition of this petition supports its motion for intervention. EDF is a nonprofit organization committed to protecting its members from the harmful effects of air pollution and climate change. It has consistently advocated for increased oversight over gas gathering pipelines, and the Final Rule secures immediate and concrete benefits to its members who live around previously unregulated gathering lines.[17] EDF has protectable interests in shielding its members from being deprived of these benefits if the Final Rule were vacated.

[17] Declaration of Jeremy Proville ¶¶ 23–27.

EDF likewise has associational standing to intervene in this petition. Starting with the germaneness requirement, protecting the environment and human health for its members is one of EDF's core objectives, and fulfilling that objective includes ensuring that pipelines on EDF member properties and in their communities are subject to minimum standards that protect people and the environment.[18] EDF is a leading authority on the use of science, economics, and law to protect and restore the quality of our air and climate, transform energy systems, and ensure healthy and safe communities—including in the context of pipeline oversight.[19] EDF's interest in defending the Final Rule thus is germane to its organizational purpose. *See Competitive Enter. Inst. v. Nat'l Highway Safety Admin.*, 901 F.2d 107, 111 (D.C. Cir. 1990) (explaining that the standard "is satisfied by a 'mere pertinence' between litigation subject and an organization's purpose"). And defending the Final Rule does not require the participation of members for individualized proof or monetary relief.

EDF also meets the final requirement of associational standing: Its members have a direct stake in the protections afforded by the Final Rule, and thus would have standing to defend the rule in their own right.

To have Article III standing, an organization's members must show (1) injury-in-fact; (2) causation; and (3) redressability. *Sierra Club v. FERC*, 827 F.3d 59, 65

[18] Proville Decl. ¶¶ 5–6.
[19] Proville Decl. ¶¶ 5–6, 18.

(D.C Cir. 2016). A non-regulated party satisfies these standards when its injury "is fairly traceable to the regulatory action . . . that the [petitioner] seeks in the underlying lawsuit," *Fund for Animals, Inc.* 322 F.3d at 733—for instance, where "a party benefits from agency action, the action is then challenged in court, and an unfavorable decision would remove the party's benefit," *Crossroads Grassroots Policy Strategies v. FEC*, 788 F.3d 312, 317 (D.C. Cir. 2015); *Mil. Toxics Project v. EPA*, 146 F.3d 948, 954 (D.C. Cir 1998) (finding associational standing to intervene where members benefited from existing rule challenged by petitioner).

That is exactly the case here. EDF members live, work, and recreate near gathering lines, and experience corresponding local air pollution and safety risks; and EDF members are also at risk from the negative effects of climate change.[20] If this Court were to vacate the Final Rule, EDF members would suffer health, safety, recreational, and aesthetic injuries from increased air pollution, worsened effects of climate change, and increased safety risks.[21] And each of these injuries would be "fairly traceable" to the petitioner's success, while "a decision favorable" to EDF—declining to vacate the rule—would redress them. *Fund for Animals,* 322 F.3d at 733.

As a result, EDF and its members have both a legally protected interest under Rule 24(a)(2) and Article III standing to intervene independently. *See LULAC v. Boerne,*

[20] Proville Decl. ¶¶ 18–19; Declaration of Francis Don Schreiber ¶¶ 3, 14, 19.
[21] Proville Decl. ¶¶ 19, 23–27; Schreiber Decl. ¶¶ 21, 24; Lyon Decl. ¶¶ 17–18.

659 F.3d 421, 434 n.17 (5th Cir. 2011) ("[A] movant who shows standing is deemed to have a sufficiently substantial interest to intervene.").

A. Injury-in-fact

1. Air pollution injuries. Many EDF members reside in close proximity to gathering lines, and spend time recreating and working around gathering lines.[22] Over 5,200 members live within one-half mile of gathering lines in the United States,[23] members have gathering lines on their properties, and members spend time with young children and vulnerable family members in proximity to those lines.[24] Without the Final Rule, these members will suffer from increased exposure to air pollution caused by pollutants such as volatile organic compounds (VOCs) and hazardous air pollutants such as benzene. That is because the unprocessed natural gas transported by gas gathering lines contains these pollutants, and when those lines leak (or experience other major release incidents), they emit this harmful pollution.[25] And the pollution poses serious health risks. For instance, VOC emissions are precursors to ground-level ozone, which is associated with significant negative effects to human health, including out-of-hospital cardiac arrests and higher rates of strokes in the short term and lung cancer, heart failure, and emphysema in the long term.[26]

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[22] Schreiber Decl. ¶¶ 3, 5–6; Proville Decl. ¶ 10.
[23] Proville Decl. ¶ 18.
[24] Schreiber Decl. ¶ 6, 14, 21.
[25] Thompson Decl. ¶¶ 20, 29; Proville Decl. ¶ 11; *see also* 86 Fed. Reg. at 63,283.
[26] Thompson Decl. ¶¶ 3–15.

The Final Rule helps avoid these harms. PHMSA has projected that the Final Rule will "reduce threats to the physical environment," including reducing the frequency and consequences of natural gas gathering line failures, and that it will reduce pipeline leakage, thus reducing natural gas releases and air pollution emissions from gathering lines. *See* Final Rule at 63,266, 63,285, 63,291. That includes the gathering lines EDF members interact with on a regular basis.[27] Accordingly, vacating the Final Rule will harm EDF members who will be impacted by increased emissions of VOCs that contribute to ozone formation, as well as hazardous air pollutants.[28] Exposure to this sort of pollution is the sort of harm this Court routinely holds constitutes an injury-in-fact. *See Nat. Res. Def. Council v. EPA*, 755 F.3d 1010, 1016–17 (D.C. Cir. 2014).

2. Safety, property, and recreational injuries. Similarly, EDF members who live, work, and recreate in proximity to gathering lines face increased safety risks and economic and property disadvantages from the vacatur of the Final Rule.[29]

In particular, EDF has members who worry that they could experience a serious pipeline rupture, which could ignite and cause an explosion that could harm them, damage their property, or lead to a wildfire that causes broader harms.[30] Even

[27] Proville Decl. ¶ 18.
[28] Proville Decl. ¶ 19; Thompson Decl. ¶¶ 29–30.
[29] Proville Decl. ¶¶ 10, 15, 18.
[30] Schreiber Decl. ¶ 20; Proville Decl. ¶¶ 15, 18.

in the absence of an actual rupture, navigating these risks, and coping with the constant presence of such safety threats, consumes members' time and resources.[31] They have to either live in fear that their activities might bring them in contact with a dangerous line, or spend time and money trying to figure out where lines are—especially because they know that long-unregulated lines are not subject to maintenance or oversight and do not have to be disclosed.[32]

This fear has particular impact on EDF members who enjoy outdoor recreation in areas where gathering lines are located, including members who participate in recreation with their children and grandchildren on property where gathering lines are located. These members are concerned about the safety risks of a pipeline incident, and experience less enjoyment of the land due to this burden.[33]

The Final Rule mitigates these problems. *First*, it supplies members with information about pipeline incidents and locations. The rule's annual and incident reporting requirements will allow EDF members to improve their peace of mind and physical safety—such as avoiding a pipeline with a recently reported incident, or an older pipeline that may be a greater risk.[34] *Second*, the Final Rule subjects over 90,000 miles of gathering lines to damage prevention and emergency planning standards,

[31] Schreiber Decl. ¶ 22.
[32] Schreiber Decl. ¶¶ 17, 18, 21, 23.
[33] Schreiber Decl. ¶¶ 17, 24
[34] Proville Decl. ¶ 24; Schreiber Decl. ¶ 22.

which the agency estimates will prevent incidents and facilitate faster response times in an emergency.[35] *Third*, the Final Rule subjects over 20,000 miles to leak survey and repair standards, reducing emissions as operators find and fix leaks.[36] *Fourth*, the Final Rule subjects over 20,000 miles of lines to corrosion control standards—an important change, as the unprocessed gas that gathering pipelines transport causes those lines to corrode especially quickly, contributing to leaks and failures.[37] These findings track EDF members' experiences—that unregulated lines have a tendency to become brittle, rusted, or exposed, and to face a high risk of leak or rupture.[38]

The Final Rule thus provides direct safety benefits to EDF members by improving gathering line safety and reducing the likelihood of harmful incidents. Vacatur of the rule will harm EDF members by depriving them of these benefits.

3. Climate injuries. EDF members will also suffer injuries from greenhouse gas emissions that contribute to the harmful effects of climate change if the Final Rule is vacated or otherwise invalidated.

Gathering lines are a significant source of methane emissions, which can occur both from discrete events such as a major pipeline rupture, and from leaks that consistently emit gas over a longer period of time.[39] In March 2022, for instance, a

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[35] Final Regulatory Impact Analysis at 15.
[36] Final Regulatory Impact Analysis at 15.
[37] *See* Final Regulatory Impact Analysis at 4, 7.
[38] Schreiber Decl. ¶ 10.
[39] Lyon Decl. ¶¶ 6, 13.

large-diameter gathering line in Webb County, Texas released about 900 metric tons of methane in just over an hour, resulting in the year's most severe U.S. methane release.[40] While that break was particularly acute, methane releases from gathering lines are not unusual. By EPA estimates, in 2019, gas gathering line leaks were responsible for—at minimum—113 kilotons of methane.[41] Peer-reviewed research demonstrates that methane emissions from the U.S. oil and gas sector are far higher than inventory estimates.[42] And gathering pipelines accounted for one-fifth of methane emissions from major sources in the Permian Basin in one recent study.[43]

These emissions have serious climate effects. PHMSA found that these effects include "an increase in temperature and sea level rise; changes in weather patterns toward an intensified water cycle with stronger floods and droughts; and stress on ecosystems," while "economic losses from climate change include reduced agricultural yields, human health risks, property damages from increased flood

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[40] Lyon Decl. ¶¶ 6, 7.

[41] EPA, *Natural Gas and Petroleum Systems in the GHG Inventory*, Annex 3.6, https://www.epa.gov/ghgemissions/natural-gas-and-petroleum-systems-ghg-inventory-additional-information-1990-2019-ghg.

[42] Ramón A. Alvarez et al., *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, 361 Science 186, 186 (2018), https://www.science.org/doi/10.1126/science.aar7204; Zavala-Araiza et al., *Reconciling divergent estimates of oil and gas methane emissions*, 51 Proc. Natl. Acad. Sci. 15597 (2015), https://www.pnas.org/content/112/51/15597.

[43] Cusworth et. al, *Intermittency of Large Methane Emitters in the Permian Basin*, Environ. Sci. & Technol. Lett. 2021, 8, 569–71, available at https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.1c00173.

frequencies, [and] the loss of ecosystem services."[44] These effects will disproportionately impact "minority, low-income, underserved, and other disadvantaged populations and communities." Final Rule at 63,291.

And these climate effects will directly impact EDF members. They could generate negative economic impacts for EDF members who rely on ranching and grazing.[45] They will harm EDF members whose family members who are particularly vulnerable to air pollution.[46] And they will expose EDF members to more severe wildfires, heat waves, and drought.[47]

The Final Rule will help address these problems. By PHMSA's estimate, the rule will "reduc[e] methane, carbon dioxide, and other GHG emissions" associated with "natural gas gathering line failures that result in releases and incidents."[48] By remaining in effect, the Final Rule will benefit EDF members by reducing their susceptibility to climate impacts caused by greenhouse gas emissions.

B. Causation and redressability

EDF members also meet the causation and redressability requirements for Article III standing. Non-regulated parties have standing when their "injury is fairly

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[44] PHMSA, Final Environmental Assessment at 16 (Nov. 2021), https://www.regulations.gov/document/PHMSA-2011-0023-0485.

[45] Schreiber Decl. ¶ 5, 14.

[46] Schreiber Decl. ¶ 14; Thompson Decl. ¶¶ 3–15.

[47] Proville Decl. ¶¶ 13, 19; Schreiber Decl. ¶ 14.

[48] Final Environmental Assessment at 16; *see also id.* at 18.

traceable to the regulatory action . . . that the [petitioner] seeks in the underlying lawsuit." *Fund for Animals,* 322 F.3d at 733. That is particularly true when "a party benefits from agency action, the action is then challenged in court, and an unfavorable decision would remove the party's benefit." *Crossroads*, 788 F.3d at 317. And that is just what happened here. As explained above, the Final Rule reduces harmful emissions and as well as expenses and difficulties EDF members currently face. Vacating the rule would again subject EDF members to those injuries. Accordingly, the injuries would be "fairly traceable" to such a decision, while "a decision favorable" to EDF would redress them. *Fund for Animals,* 322 F.3d at 733.

GROUNDS FOR INTERVENTION

I. EDF is entitled to intervene as of right.

EDF meets the requirements to intervene as of right in this petition and respectfully requests that this Court grant its motion to intervene.

A. EDF's motion is timely.

EDF's motion to intervene is timely because it is submitted within 30 days of the filing of the petition. Fed. R. App. P. 15(d). No more is needed to satisfy this factor. *See Ala. Municipal Distribs. Grp. v. FERC*, 300 F.3d 877, 879 (D.C. Cir. 2002).

B. EDF has a vital interest that may be impaired or impeded by the disposition of this petition.

EDF likewise has vital interests in this litigation, as explained in detail in our discussion of standing. The resolution of the petition will determine whether

hundreds of thousands of unregulated gathering pipelines will be subject to basic incident reporting requirements, and whether over 90,000 miles of gathering lines will be subject to enhanced safety and environmental protections. EDF members live, work, and recreate among these unregulated pipelines.[49] EDF has protectable interests in shielding its members from harms that would result if the rule's long-awaited gathering line regulations are vacated or delayed.[50]

EDF's advocacy activities underscore the organization's strong interest here. EDF has been an active participant in the underlying rulemaking, submitting public comments detailing support for the rule, meeting with agency officials to provide input on the regulatory process, and opposing industry's reconsideration petition.[51]

An adverse resolution of this petition would impair EDF's ability to protect these interests. Vacatur of the rule would prevent the enforcement of a "regulatory system" of which EDF's members are direct "beneficiaries." *Wal-Mart*, 834 F.3d at 566. That, in turn, would put EDF members at significant risk—of continued

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[49] Proville Decl. ¶ 18.

[50] Schreiber Decl. ¶¶ 22–24; Proville Decl. ¶¶ 23–26.

[51] Comment of EDF on PHMSA NPRM: *Pipeline Safety: Safety of Gas Transmission and Gathering Pipelines*, 81 Fed. Reg. 20721 (Apr. 8, 2016), (July 7, 2016), https://www.regulations.gov/comment/PHMSA-2011-0023-0351; March 3, 2022 Meeting Summary, Docket PHMSA-2011-0023, https://www.regulations.gov/document/PHMSA-2011-0023-0505; Opposition of Environmental Defense Fund to API/GPA's Petition for Reconsideration and Motion for Stay of the Final Rule, PHMSA-2011-0023 (Mar. 30, 2022), https://www.regulations.gov/comment/PHMSA-2011-0023-0501.

exposure to dangerous pollutants, increased risk of climate-related catastrophe, and ongoing difficulty and expense in filling the existing regulatory gap themselves.

C. EDF's interests are not adequately represented.

The federal government does not adequately represent these interests. For this to be so, an applicant must show only that the existing parties' "representation of [their] interest 'may be' inadequate." *Trbovich v. United Mine Workers*, 404 U.S. 528, 538 n.10 (1972). A petitioner "ordinarily should be allowed to intervene unless it is clear" that the existing party "will provide adequate representation for the absentee," *Fund for Animals*, 322 F.3d at 736–37.

EDF easily satisfies this "minimal" showing. *In re Brewer*, 863 F.3d 861, 873 (D.C. Cir. 2017). Recognizing the old wisdom that "a doubtful friend is worse than a certain enemy," *Crossroads*, 788 F.3d at 314, this Court has "often concluded that governmental entities do not adequately represent the interests of aspiring intervenors," *Fund for Animals*, 322 F.3d at 736 & n.9. The same is true here.[52] The respondents' "obligation is to represent the interests of the American people" broadly.

[52] Indeed, this Court regularly permits nonprofit advocacy organizations like EDF to intervene in support of agencies in actions seeking to invalidate regulations that limit harmful pollution and impose basic safety and environmental standards on infrastructure and industries that cause that pollution. *See, e.g.*, Order, *Competitive Enter. Inst. v. NHTSA*, Case No. 20-1145 (D.C. Cir. Oct. 8, 2020), ECF No. 1865427 (petition for review of, inter alia, greenhouse-gas standards for passenger vehicles and light trucks); Order, *Truck Trailer Mfrs. Ass'n, Inc. v. EPA*, Case No. 16-1430 (D.C. Cir. Mar. 10, 2017), ECF No. 1665427 (petition for review of, inter alia, greenhouse-gas standards for heavy-duty trailers).

See id. at 736. Meanwhile, EDF's "concern is for" its organizational objective of protecting human health and the environment both in general and for its members. *Id.* Given respondents' more general responsibilities, EDF's interests are not adequately represented. *See id.* at 737.

II. In the alternative, this Court should grant EDF permissive intervention.

In the alternative, the Court should allow permissive intervention. Federal Rule of Civil Procedure 24(b) grants courts broad discretion to allow "timely" intervention for "anyone" whose "defense . . . shares with the main action a common question of law or fact" if intervention will not "unduly delay or prejudice the adjudication of the original parties' rights." This is a substantially lower burden than the test for intervention as of right under Rule 24(a)(2).

For most of the same reasons discussed above, permissive intervention is warranted. *First*, the motion is timely. *See LULAC v. Wilson*, 131 F.3d 1297, 1308 (9th Cir. 1997) (explaining that timeliness inquiry is the same). *Second*, there are obviously common questions of law and fact. *Third*, the Court should exercise its equitable discretion to permit intervention under Rule 24(b) because this case presents issues of exceptional importance to EDF that respondents may not adequately protect.

CONCLUSION

The Court should grant EDF's motion to intervene as a respondent in this matter.

Respectfully submitted,

/s/ Matthew W.H. Wessler

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June 1, 2022

CERTIFICATE OF COMPLIANCE WITH RULE 32(g)(1)

I hereby certify that my word processing program, Microsoft Word, counted 4,676 words in the foregoing motion, exclusive of the portions excluded by Rule 32(f). The document also complies with the typeface requirements of Fed. R. App. P. 32(a)(6) and the type-style requirements of Fed. R. App. P. 32(a)(6) because it was prepared in proportionally spaced typeface in 14-point Baskerville font.

/s/ Matthew W.H. Wessler
Matthew W.H. Wessler

CERTIFICATE OF SERVICE

I hereby certify that on June 1, 2022, I electronically filed the foregoing motion to intervene and attachments with the Clerk of the Court for the U.S. Court of Appeals for the District of Columbia Circuit by using the CM/ECF system. All participants are registered CM/ECF users, and will be served by the appellate CM/ECF system.

/s/ Matthew W.H. Wessler
Matthew W.H. Wessler

[ORAL ARGUMENT HAS NOT BEEN SCHEDULED]
No. 22-1070

In the United States Court of Appeals
for the District of Columbia Circuit

GPA MIDSTREAM ASSOCIATION,
Petitioner,

v.

U.S. DEPARTMENT OF TRANSPORTATION & PIPELINE and HAZARDOUS MATERIALS SAFETY ADMINISTRATION,
Respondents.

STANDING DECLARATIONS IN SUPPORT OF MOTION OF ENVIRONMENTAL DEFENSE FUND TO INTERVENE IN SUPPORT OF RESPONDENT

STANDING DECLARATIONS

Declaration of David Lyon
Declaration of Jeremy Proville
Declaration of Francis Don Schreiber
Declaration of Dr. Tammy Thompson

DECLARATION OF DAVID LYON

I, David Lyon, declare as follows:

1. I am a Senior Scientist with Environmental Defense Fund (EDF). My work focuses on methane emissions from the oil and gas sector and enhancement of emissions inventories. I work on EDF's ground-breaking series of studies to quantify methane emissions from the natural gas value chain, as well as analyzing emissions data and researching technologies and policies to reduce natural gas leakage and minimize the climate impacts of natural gas development. Some of my recent peer-reviewed, co-authored publications include *Methane emissions from US low production oil and natural gas well sites*, published in Nature Communications, and *Closing the methane gap in US oil and natural gas production emissions inventories*, published in Nature Communications.[1]

2. I have a PhD in Environmental Dynamics from University of Arkansas (2016); a Master of Science in Forestry from University of Kentucky (2004); and a Bachelor of Arts in Biology from Hendrix College (2002). My PhD

[1] Omara, M., Zavala-Araiza, D., Lyon, D.R. et al. Methane emissions from US low production oil and natural gas well sites. Nat Commun 13, 2085 (2022). https://doi.org/10.1038/s41467-022-29709-3; Rutherford, J.S., Sherwin, E.D., Ravikumar, A.P. et al. Closing the methane gap in US oil and natural gas production emissions inventories. Nat Commun 12, 4715 (2021). https://doi.org/10.1038/s41467-021-25017-4.

dissertation focused on the quantification, characterization, and mitigation of methane super-emitters from the oil and gas value chain.

3. Natural gas consists primarily of methane, a potent greenhouse gas with over eighty times the near-term global warming power of carbon dioxide. Atmospheric methane concentrations are at an all-time high and have been steadily increasing in recent years—coinciding with the increase in U.S. oil and gas production. At least 25% of today's warming is driven by methane from human actions, with the oil and gas sector as one of the largest sources. These emissions primarily result from leakage along the supply chain, including from gas gathering pipelines. Reducing oil and gas methane emissions is critical for avoiding the worst effects of climate change. Pipeline ruptures can release hundreds of tons of methane per event, and federal standards to prevent gas pipeline ruptures and ensure leaks are identified and remediated will help to reduce methane emissions and mitigate harmful climate change. Many mitigation measures will have other benefits too, such as cost and energy supply savings from capturing gas that would otherwise be wasted.

PHMSA Gathering Line Rule

4. I am aware that the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a final rule in

November 2021, *Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments* ("Final Rule"), that establishes long overdue gathering line standards to enhance safety and protect the environment.

5. I understand the Final Rule requires owners and operators of all onshore gas gathering lines to file annual reports and to report major incidents. I also understand that the Final Rule establishes a new category of regulated rural gathering lines with larger diameters that operate at higher stress levels or pressure—known as Type C—which are subject to emergency planning and damage prevention requirements. I understand that the Final Rule requires operators to conduct leak detection and repair for a subset of Type C lines.

Big Cowboy Pipeline Break

6. On March 17, 2022, a line break occurred on the Big Cowboy Pipeline, a 16-inch diameter gas gathering line located in Webb County, Texas, operated by Energy Transfer LP through ETC Texas Pipeline Ltd.[2] According to the operator, the break was emitting gas for 1 hour and 9 minutes before it was

[2] Bloomberg reported that the pipeline is operated by Energy Transfer LP through ETC Texas Pipeline Ltd., and jointly owned with Kinder Morgan. In reporting to Texas Commission for Environmental Quality, the operator is identified as Houston Pipe Line Company LP, which may be a subsidiary of Energy Transfer or ETC Texas Pipeline Ltd.

repaired. A European Space Agency satellite detected a significant methane plume at the same time and location, and geoanalytics firm Kayrros SAS reported that this event was the most severe methane release they observed in the United States in the last year using satellite data.[3]

7. I conducted an analysis of the Big Cowboy Pipeline break for Bloomberg. Based on the methane plume observed by the European Space Agency satellite and a report the operator filed with the Texas Commission for Environmental Quality (TCEQ),[4] I estimate that the gathering line break likely released about 900 metric tons of methane into the atmosphere. TCEQ's Air Emission Event reporting rule requires operators to report significant releases of volatile organic compounds (VOCs) but does not require that methane emissions be reported. In its report to TCEQ, the operator included supplemental data on the volume of gas released (52,150 Mcf) and gas composition (9% total N_2, CO_2, and non-methane and ethane hydrocarbons). Based on the accepted conversion that 1Mcf CH_4 = 0.0192 metric tons CH_4, I calculated that this gas volume is equivalent to 910 metric

[3] Aaron Clark & Naureen S. Malik, *Unregulated Texas Gas Pipeline Triggers a Huge Methane Leak*, Bloomberg (Apr. 18, 2022), https://www.bloomberg.com/news/articles/2022-04-18/energy-transfer-pipeline-in-texas-leaks-methane.

[4] Air Emission Event Report Database Incident 376303, Texas Commission on Environmental Quality, https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=376303 (last visited May 30, 2022).

tons of methane and ethane. This release consisted of a minimum of 700 tons of methane since gathered gas typically contains at least 70% methane, but the gas could easily contain a higher percentage of methane and thus the release could be as large as 900 metric tons.

8. A single pipeline break of ~900 metric tons methane represents nearly 0.8% of the U.S. Environmental Protection Agency's total estimate of nationwide methane emissions from gathering pipeline leaks in 2019. The volume of methane released from the Big Cowboy Pipeline during the *one-hour* incident is equivalent to the *annual* greenhouse gas emissions emitted by nearly 5,000 passenger vehicles, according to the U.S. EPA greenhouse gas equivalencies calculator.[5] As another comparison, I estimate that the volume of methane released during the one-hour incident could meet the annual natural gas consumption of over 700 households, according to data from the U.S. Energy Information Administration.[6]

[5] U.S. EPA, Greenhouse Gas Equivalencies Calculator (updated Mar. 2022), https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

[6] U.S. Energy Information Administration, U.S. Natural Gas Residential Consumption, https://www.eia.gov/dnav/ng/hist/n3010us2a.htm (last updated Apr. 29, 2022); U.S. Energy Information Administration, Number of Natural Gas Consumers, https://www.eia.gov/dnav/ng/ng_cons_num_a_EPG0_VN3_Count_a.htm (last updated Apr. 29, 2022).

9. It is my understanding that this break occurred on an unregulated gathering line. The pipeline operator, Energy Transfer LP, confirmed to Bloomberg that the gathering line is unregulated.[7]

10. Because the pipeline break occurred on March 17, 2022, before the Final Rule came into effect, the operator was not required to and did not report the incident to PHMSA, the federal agency responsible for oversight of existing gas pipelines to protect public safety and the environment. I am aware that the Final Rule took effect on May 16, 2022, and since that date all gathering line operators are now required to report to PHMSA on major safety incidents that result in large releases of gas (methane).

11. Gas gathering pipelines transport unprocessed gas from production areas such as well sites to processing facilities. Unprocessed gas is typically comprised of about 70% methane, with the remaining 30% containing several air pollutants such as volatile organic compounds (VOCs), benzene, and sometimes carbon dioxide (CO2). Gathering lines may corrode more rapidly than other gas pipelines because the unprocessed gas induces more internal corrosion in the pipeline material.

[7] https://www.bloomberg.com/news/articles/2022-04-18/energy-transfer-pipeline-in-texas-leaks-methane.

12. I believe that the Final Rule will reduce the likelihood and frequency of events like the recent Big Cowboy Pipeline incident, because the rule requires greater mileage of gathering lines to comply with standards for damage prevention, emergency planning, corrosion control, and leak surveys and repairs. By reducing incidents on gathering lines, the Final Rule reduces methane emissions that contribute to climate change, reduces air pollution that can negatively affect the health of people in nearby areas, and reduces events that can harm people and property.

Pipeline Leaks Emit Methane and Other Pollutants

13. In addition to major release events like the break on the Big Cowboy Pipeline, I am aware that gas gathering pipelines can develop ongoing leaks. When gathering line leaks are not identified and remediated, they will continue to emit methane (and the other pollutants in unprocessed gas) for long periods of time.

14. The Permian Methane Analysis Project (PermianMAP) is an initiative by EDF and partners that combines established data collection methods with state-of-the-art technologies to pinpoint, measure and report on oil and gas methane emissions in the Permian Basin in the United States.[8] As part of the

[8] https://www.permianmap.org/.

PermianMAP project, an R44 helicopter equipped with an optical gas imaging camera was deployed to the Permian Basin in Fall 2021 to document significant emissions of methane from gathering pipelines; and two aircraft remote sensing campaigns were conducted by CarbonMapper in Summer and Fall 2021 to identify and assess the persistence of large emission sources.

15. The PermianMAP surveys identified numerous persistent methane emissions sources on gathering lines, which are likely pipeline leaks. Of the 26 sites observed to be emitting methane during the summer 2021 aircraft survey, 15 (~58%) were still observed to be emitting about two months later during a helicopter survey. Many (9, ~35%) of these sites were also observed to be still emitting when the aircraft returned in October 2021. By the end of the aircraft survey in late November 2021, 14 sites (~32% of all 44 sites observed in the first survey) were observed emitting large amounts of methane continuously for at least 3 months since the first observation in Summer 2021. These sites were likely emitting methane for longer than several months as these dates only mark the observation of the event, not the emergence.

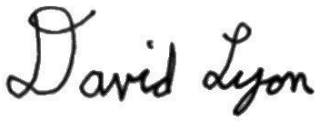
16. The PermianMAP findings provide a small snapshot that indicates the significance of leakage from gas gathering lines. The ongoing release of

methane and other pollutants from leaks on gathering lines contributes to climate change and other negative impacts. Leaks can also worsen over time and pose an increased risk of a safety incident.

17. Because the Final Rule requires more gathering line operators to conduct leak survey and repair efforts on a regular basis, and to engage in corrosion control and other practices that should reduce pipeline leaks, I believe the Final Rule will reduce methane and other pollution leaks from gathering lines.

18. Without PHMSA's Final Rule, our members would be at increased risk of danger from gathering lines, including air pollution and safety-related incidents. Without the Final Rule, our members would also be at increased risk from the dangers of climate change which would be lessened by reduced emissions of methane.

I declare that the foregoing is true and correct.



David Lyon

Executed on May 31, 2022.

DECLARATION OF JEREMY PROVILLE

I, Jeremy Proville, declare as follows:

1. I am a Director in the Economics and Global Climate Cooperation department at the Environmental Defense Fund (EDF). I have worked as an economic and geospatial analyst for EDF for over 10 years. I hold a Master of Science and a Bachelor of Commerce from McGill University.

2. My duties at EDF include performing demographic and spatial analyses, including assessing how EDF's membership and broader populations are impacted by pollution and affected by environmental policies. My work requires me to be familiar with EDF's policy positions, analytical methods, scientific research, and membership database.

3. I have published works on the impacts of air pollution and other environmental externalities on people and vulnerable communities.[1]

[1] Proville, J, Roberts, K, Peltz, A, Trask, E, Watkins, L, and Wiersma, D., *Communities in Proximity to Active Oil and Gas Wells in the United States* (2022) *In press*; Spiller, E., Proville, J., Roy, A., & Muller, N. Z., *Mortality Risk from PM 2.5: A Comparison of Modeling Approaches to Identify Disparities across Racial/Ethnic Groups in Policy Outcomes*, 129 Environmental Health Perspectives, 127004 (2021), https://ehp.niehs.nih.gov/doi/full/10.1289/EHP9001; Environmental Defense Fund, *Federal Methane Map* (2021), available at: https://www.edf.org/federalmethanemap/; EDF, *New Mexico Oil & Gas Data* (2021), available at: https://www.edf.org/nm-oil-gas/map/; Kritee, K., Nair, D., Zavala-Araiza, D., Proville, J., Rudek, J., Adhya, T. K., & Ram, K., *High nitrous oxide fluxes from rice indicate the need to manage water for both long-and short-term climate impacts*, 115 Proceedings of the National Academy of Sciences 9720-

4. EDF is a membership organization incorporated under the laws of the State of New York. It is recognized as a not-for-profit corporation under section 501(c)(3) of the United States Internal Revenue Code.

5. EDF is one of the world's leading environmental organizations. EDF's mission is to preserve the natural systems on which all life depends. For more than 50 years we've been pioneers, using science and different perspectives to make the environment safer and healthier for us all. Guided by science and economics, EDF finds practical and lasting solutions to the most serious environmental problems. EDF employs hundreds of scientists, economists, engineers, business school graduates, lawyers, and other professionals to help solve environmental problems in a scientifically sound and cost-effective way.

6. EDF's work covers climate, energy, oceans, ecosystems, and health. Since these topics are intertwined, we take a multidisciplinary, solutions-based approach, working in concert with other organizations—as well as with businesses, governments, and communities. We seek to protect and restore the quality of our air and climate, transform energy systems, and ensure

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9725 (2018), https://www.pnas.org/doi/10.1073/pnas.1809276115: Proville J, Zavala-Araiza D, Wagner G, *Night-time lights: A global, long term look at links to socio-economic trends*, 12 *PLoS ONE*. e0174610 (2018).

healthy and safe communities. EDF's energy and climate teams seek to bend the curve on global greenhouse gas emissions from fossil fuel production and use by 2030, cleanly and equitably. We do this through a defined set of strategies targeted at 1) reducing emissions from fossil fuel production, delivery, and use, and 2) reducing demand for fossil fuels in power generation, transportation, buildings, and industry. EDF's clean air and health teams focus on protecting both people and the environment from pollution and toxic chemicals. We do this through cutting-edge research and advocacy, wide-ranging partnerships, and a focus on strengthening laws and policies that protect health, air, water, and make food and household products safer.

PHMSA Gathering Lines Rule

7. It is my understanding that the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration's (PHMSA) recently finalized action, *Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments* (Final Rule), establishes commonsense, long overdue standards for gas gathering pipelines—which transport unprocessed gas from production areas such as well sites to processing facilities—that are designed to enhance safety and protect the environment. I understand that there are

over 435,000 miles of gathering lines in the U.S., and the Final Rule requires owners and operators of all onshore gas gathering lines to file annual reports and report incidents for the purpose of collecting data about gas gathering infrastructure, monitoring safety performance of unregulated gathering lines, and determining the need for future regulatory changes to address the risks to the public, property, and the environment posed by gas pipelines. I also understand that the Final Rule establishes a new category of regulated rural gathering lines—Type C—applicable to over 90,000 miles of pipeline, that are subject to emergency planning, damage prevention, and additional requirements depending on pipeline size and location.

8. EDF has a strong organizational interest, and a strong interest that is based in its members' recreational, aesthetic, professional, educational, public, health, environmental, consumer, and economic interests, in expanding safety requirements and reducing harmful pollution from gathering lines.

Impact of Gathering Lines

9. I understand that domestic natural gas production has greatly increased over the past two decades, leading to a significant increase in the volume of gas transported by gathering lines and a significant buildout of gathering line infrastructure constructed with larger diameters and higher operating pressures. I am aware that the potential safety and environmental

consequences of a gas pipeline rupture are proportional to its diameter and operating pressure. Large-diameter, high-pressure gathering lines are susceptible to the same types of integrity threats as transmission pipelines, including corrosion, excavation damage, and structural defects. This expanding and increasingly dangerous network of gathering lines has been largely unregulated and poses serious safety and environmental concerns. Prior to the issuance of the Final Rule, only 11,700 out of the 435,000 miles of U.S. gas gathering lines were directly regulated by PHMSA.

10. One major risk of gas gathering lines I am aware of is the risk of a rupture or explosion. I understand that the consequences of such an incident are significant, and that the impact radius for gas explosions can affect and harm people who are not in the direct vicinity.[2] I know many incidents have occurred on high pressure, unregulated lines, including some that have resulted in serious injuries and death.[3] I am aware that pipeline explosions have destroyed homes 500 feet away, causing neighborhood evacuations, and even requiring the closure of nearby interstate highways.[4] People that

[2] *See, e.g., Evacuation order lifted after Salem Twp. gas line explosion*, WPXI News (May 2, 2016), https://www.wpxi.com/news/man-severely-burned-by-gas-line-blast-that-destroyed-salem-twp-home/248673618/.
[3] *Id.*; Final Rule, 86 Fed. Reg. 63266, 63272.
[4] PHMSA, *New Federal Regulations Add More Than 400,000 Miles of "Gas Gathering" Pipelines Under Federal Oversight* (Nov. 15, 2021), https://www.phmsa.dot.gov/news/new-federal-regulations-add-more-400000-

live near gathering lines are very likely to work and recreate nearby, meaning they could be in close proximity to a gathering line and could be harmed by a safety incident even when they are not at home.

11. Another risk I am aware of is the risk of exposure to leaks of unprocessed gas. Gas gathering pipelines regularly leak unprocessed gas into the surrounding environment. I am aware that living in close proximity to gathering lines exposes people to negative impacts from the air pollution caused by leaks of unprocessed gas. Unprocessed gas typically contains volatile organic compounds (VOCs) and hazardous air pollutants (HAPs), including benzene.[5] Those who live in close proximity to gathering lines are at risk from these leaks. The threat radius for HAPs is generally considered to be a half mile—meaning that those within a half mile of a leak are at high risk of exposure to these toxic pollutants.[6] Exposure to VOCs and HAPs can

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miles-gas-gathering-pipelines-under-federal-oversight#:~:text=The%20rule%20establishes%20a%20new,of%20miles%20of%20these%20pipelines.

[5] Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review, 85 Fed. Reg. 57,018, 57,028 (Sept 14, 2020) (citing EPA, *Analysis of Average Methane Concentrations in the Oil and Gas Industry Using Data Reported Under 40 CFR part 98 Subpart W*, (April 9, 2020), https://www.regulations.gov/document/EPA-HQ-OAR-2017-0757-2682).

[6] *See, e.g.*, J. C. S. Long, L. Feinstein, J. T. Birkholzer, W. Foxall, "An Independent Scientific Assessment Of Well Stimulation In California, Vol. 3" (California Council on Science and Technology, 2016), available at https://ccst.us/publications/2015/2015SB4-v3.php; J. Chakraborty, J. A. Maantay, J. D. Brender, Disproportionate Proximity to Environmental Health Hazards:

lead to a wide range of negative health impacts, including respiratory and skin irritation, neurological problems, dizziness, and headaches. VOCs also contribute to the formation of ground-level ozone or smog which negatively impacts human health and can lead to decreases in lung function, respiratory-related emergency room visits, and premature death. Ozone pollution is particularly harmful for vulnerable populations, such as children, people with respiratory diseases or asthma, older adults, and people who are active outdoors, especially outdoor workers. Those living near gathering lines are exposed to increased risk of these negative health impacts.

12. I am aware that natural gas consists primarily of methane, a potent greenhouse gas with over eighty times the near-term global warming power of carbon dioxide. I am likewise aware that atmospheric methane concentrations are at an all-time high and have been steadily rising since about 2007, coinciding with the increase in U.S. oil and gas production. At least 25% of today's warming is driven by methane from human actions, with the oil and gas sector as one of the largest sources.[7] These emissions

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Methods, Models, and Measurement. American Journal of Public Health. 101, S27–S36 (2011). https://ccst.us/wp-content/uploads/160708-sb4-vol-III.pdf.

[7] Ocko et al., *Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming*, 16 Env. Research Letters 054042 (2021), https://iopscience.iop.org/article/10.1088/1748-9326/abf9c8.

primarily result from leakage along the supply chain, including from gas gathering pipelines. Reducing oil and gas methane emissions is critical for avoiding the worst effects of climate change.[8] Pipeline leaks and ruptures can release significant volumes of methane, and standards to prevent ruptures and ensure leaks are quickly contained will mitigate harmful climate change. Moreover, many mitigation measures result in cost and energy supply savings from capturing gas that would otherwise be wasted.

13. I know that climate change, which is made worse by methane emissions, is serious and existential threat that affects both the environment and human health and wellbeing. The impacts of climate change are projected to become greater, more frequent, and more intense with every additional increment of global warming. Because climate change is an incremental problem, every additional ton of greenhouse gases emitted into the atmosphere is important; each one contributes to greater warming, further exacerbating the impacts. These impacts include longer and more intense hurricane seasons, prolonged drought, larger and more intense wildfires, rising sea-levels, increased flooding, and widespread extreme weather events. Climate change is also a serious threat to human health. For example, climate change is projected to increase ozone pollution across broad swaths

[8] *Id.*

of the U.S., cause worsening and deadly heat waves, and drive increases in vector-borne diseases.

EDF Members Affected by Gathering Lines

14. EDF members are among those directly affected by leaks and ruptures along gas gathering lines. EDF has conducted an analysis of where our members live across the U.S. to determine how many reside within a half mile of a gathering line. We used a half-mile radius because it is a conservative estimate of the area within which elevated levels of harmful and hazardous pollution are seen, and the distance within which health impacts have most clearly been correlated with the presence of oil and gas facilities.

15. But we anticipate that this estimate understates the full impact of gathering line incidents on our members. That is because independent research and analysis indicate oil and gas operations have been linked to air pollution at distances much greater than a half mile. Furthermore, while the impact radius from an explosion would likely be smaller than a half mile, we expect that residents living within a half mile would often be travelling closer to the gathering lines for work, school, errands, and recreation, putting them at risk of harm from a safety incident such as an explosion and the associated pollution.

16. I understand from our membership department that when an individual becomes a member of EDF, their current residential address is recorded in our membership database. The database entry reflecting the member's residential address is verified or updated as needed. The database is maintained in the regular course of business, and each entry reflecting a member's residential address and membership status is promptly updated to reflect changes. I obtained the information about our membership discussed below from our membership database.

17. We performed our analysis using this EDF membership data and geographic information systems (GIS) to assess the proximity of the geographic coordinates of members' addresses to recorded gathering lines. The gathering lines dataset was obtained from the Enverus DrillingInfo database, which is an established database relied on by industry and other oil and gas stakeholders.[9] We selected all "Operational" pipelines with a system type designated as "Gathering" for the U.S.

18. Our analysis determined that EDF has over 5,200 members who live within a half mile of gathering lines. We believe this analysis is relevant to understanding the benefits of the Final Rule because, of the more than

[9] Enverus DrillingInfo Database. (2022). Retrieved from: https://info.drillinginfo.com/.

435,000 miles of U.S. onshore gas gathering lines, only approximately 11,700 miles of gathering lines were subject to PHMSA regulations prior to the issuance of the Final Rule. The Enverus database does not indicate whether gathering lines are regulated, nor does it indicate what level of PHMSA regulations apply, so it is possible that some EDF members live in proximity to the small subset of gathering lines that were already subject to PHMSA regulation prior to the Final Rule. However, many of the EDF members in our analysis likely live in proximity to gathering lines affected by the Final Rule. EDF has long advocated that PHMSA establish more transparent reporting of pipeline locations and other data—for example, by including all gathering lines in the National Pipeline Mapping System—which would enable more detailed analysis.

19. Without PHMSA's Final Rule, our members are at increased risk of danger from gathering lines, including air pollution and safety-related incidents. Without the Final Rule, our members are also at increased risk from the dangers of climate change—including more severe wildfires, increased risk of flooding, sea-level rise, heat waves, and drought—which would be lessened by reduced emissions of methane.

Impact of Gathering Lines on the General Population

20. Additionally, we were able to identify the local communities that are often disproportionately impacted by air pollution. Using the U.S. Census Bureau's American Community Survey 5-year estimates for 2015-2019 and the 2021 Centers for Disease Control (CDC) Places dataset, we were able to estimate the populations living within a half mile radius of active gathering lines using areal apportionment, a slightly different methodology as that used above for EDF members. This approach estimates the area encompassed within a half-mile buffer radius of all gathering lines and overlays those buffers onto census tracts to calculate the percentage of each tract comprised of buffers (i.e., the area of each tract within a half mile of a gathering line). The areal apportionment method assumes that populations are spread evenly across a given census tract (excluding water bodies), and thus providing an estimate of the populations at a census-tract level living within a half mile of an active gathering line. This method is commonly used in published literature utilizing distance-based analysis.[10] While some studies have used finer spatial resolutions such as census block groups, we performed our analysis using census tracts to minimize margins of error in

[10] Chakraborty et al., *Disproportionate Proximity to Environmental Health Hazards: Methods, Models, and Measurement* 101 Am. J. of Public Health S27–S36 (2011).

census estimates, given the narrower demographic groups. Census tracts, and even larger regions such as zip codes, have often been used in similar analyses.[11]

21. Using this methodology, we find that approximately 11 million people live within half a mile of an active gathering line in the United States, including over 700,000 children under the age of five years and 1,700,000 elderly people over the age of 65 years, who are especially sensitive to the health risks posed by ozone and other local air pollution. Additionally, approximately 1,600,000 people living below the poverty line live within half a mile of a gathering line, who may face greater barriers such as accessing medical care. Within a half mile of an active gathering line there are communities with health conditions that are exacerbated by air pollution, including over 1 million adults with asthma, 700,000 with chronic heart disease, 850,000 with COPD (chronic obstructive pulmonary disease) and roughly 380,000 adults who have had a stroke.

[11] *See, e.g.*, T. Srebotnjak and M. Rotkin-Ellman, *Drilling in California: Who's at risk?*, Natural Resources Defense Council (2014); Mohai & Saha, *Reassessing racial and socio-economic disparities in environmental justice research*. 43 Demography 383–399 (2006); Kearney & Kiros, *A spatial evaluation of sociodemographics surrounding National Priorities List sites in Florida using a distance-based approach*. 8 Intl. J. Health Geography 33 (2009).

22. As demonstrated by our analysis, approximately 11 million Americans including over 1 million adults with asthma live in close proximity to gathering lines and would be negatively affected if the Final Rule were not in effect.

Benefits of the Final Rule

23. I am aware that the Final Rule establishes multiple new requirements that will benefit EDF members by improving the safety of gathering lines, reducing methane pollution that contributes to climate change, and reducing local air pollution that has negative health impacts. I am further aware that by preventing incidents caused by corrosion and excavation damage that can lead to pipeline breaks, the Final Rule will reduce methane emissions from these incidents—which can be significant.[12]

24. I understand that the Final Rule establishes annual and incident reporting requirements for all gathering lines, which will improve transparency and accountability around incidents that pose safety threats and release methane. Reporting requirements will result in the collection of public information about gathering line operators so that EDF members and other community members living near gathering line infrastructure can better understand the

[12] *See, e.g.*, Clark & Malik, *Unregulated Texas Gas Pipeline Triggers a Huge Methane Leak*, Bloomberg (Apr. 18, 2022), https://www.bloomberg.com/news/articles/2022-04-18/energy-transfer-pipeline-in-texas-leaks-methane.

safety record of nearby operators and can be aware of incidents that release harmful air pollution. This information would allow our members to take concrete steps to protect their health and safety, like seeking medical treatment after exposure and avoiding dangerous areas.

25. I understand that the Final Rule requires over 90,000 miles of gathering lines to comply with damage prevention and emergency planning standards, requiring operators to establish written emergency plan procedures that ensure more organized and faster response to emergency events, including outreach to public officials. These standards will benefit EDF members and other community members near gathering lines by improving response to an emergency, and damage prevention compliance should help prevent ruptures and other events that release methane and other air pollution and that pose a safety risk.

26. I understand that the Final Rule establishes public awareness and line marker standards for over 20,000 miles of gathering lines, which will require operators to conduct public education outreach to surrounding communities regarding the hazards associated with releases from gathering lines; require operators to advise affected municipalities, school districts, businesses, and residents of pipeline facility locations; and require operators to install line markers that visibly indicate the location of pipelines. These requirements

benefit EDF members living in proximity to gathering lines because pipeline operators will provide more information to local residents and will be better equipped to respond to an emergency, such as a pipeline rupture. EDF members would be able to act on this information and proactively avoid areas with gathering lines to protect their safety.

27. I understand that the Final Rule establishes corrosion control and leak survey and repair requirements for over 20,000 miles of gathering lines, which will benefit EDF members living near pipelines by addressing pipeline leaks more quickly, reducing methane and other pollution and reducing the likelihood of an emergency incident. The Final Rule requires operators to use leak detection equipment for their leak surveys, which is an important step to improve identification of gathering line leaks.

I declare that the foregoing is true and correct.

Jeremy Proville

Executed on June 1, 2022.

DECLARATION OF FRANCIS DON SCHREIBER

I, Francis Don Schreiber, declare as follows:

1. I am currently a member of the Environmental Defense Fund (EDF). I have been a member since before the commencement of this lawsuit.

2. I am a rancher and landowner in Gobernador, New Mexico. My wife, Jane, and I own the Devil's Spring Ranch on 480 deeded acres in Rio Arriba County, and we have a Bureau of Land Management (BLM) permit to graze cattle, sheep, and horses on approximately 3,000 acres of land adjacent to the ranch. We graze our own horses on the ranch, and I currently lease some of my grazing rights to other ranchers, who run cattle on the land. We have no plans to move.

3. My ranch is located in the San Juan Basin in northwestern New Mexico, at times one of the most active areas in the country for oil and gas production. The ranch is subject to a split estate—I own the surface rights to my land, and the mineral rights are owned and managed by the federal government through the BLM. On our 480 deeded acres there is over a half mile of gas gathering pipelines, many installed under 40-foot easements, that serve eight wells. We estimate there are another five and a half miles of gas gathering pipelines serving 114 wells on the land surrounding our property—which comprises 5,280 acres, including the 3,000 acres under our federal grazing permit. Thus, we estimate there are approximately six miles of gathering lines serving 122 wells on

and near our ranch. We can offer only our best estimates, unfortunately, because information about the location and size of these pipelines is difficult to obtain and not publicly available, making it challenging to understand the full scope of pipeline infrastructure in the area where we live and work.

4. Typically, there are about forty feet of above-ground piping from the wellhead to the meter run where the gathering line goes underground. The lines periodically resurface at pigging sites and "dog legs" on their way toward compressor stations and processing plants.

History and Use of the Ranch

5. Jane and I bought our land in 1999, with the goal of developing a model for sustainable agriculture with cattle and passing the ranch down to our children and grandchildren. Jane and I think of our ranch as a huge backyard where we work and play on a daily basis. To work the ranch, we ride every inch of the property to check on and fix fences, check on the water supply and fix the water tanks when needed, check the grazing and grass types, and herd cattle. We used to have our own cattle on the ranch, and hope to do so again in the future, but we made the decision a few years ago to limit our ranching and focus on protecting the land in the face of oil and gas activities, as I explain below.

6. For recreation, we ride horses, hike, picnic, and enjoy exploring the points of cultural significance on the land. We have 10 grandchildren, and my

children and grandchildren visit the ranch several times a year. We all enjoy riding and hiking together.

7. At the time we bought the ranch in 1999, the oil and gas industry had less of a presence—I estimate that there were less than 2,000 feet of gathering lines on the deeded ranch property. As oil and gas activities increased, we have curtailed our ranching activities, focusing instead on mitigating the impacts this development has had on our land, our health, and the environment. We lease our grazing land to other ranchers, so there are regularly workers and cattle on the property.

8. Because there are oil and gas operations on and near my property, I closely follow developments concerning federal oil and gas regulations, including through communications that I receive from EDF. I have advocated for the adoption of measures that would reduce waste and limit emissions from oil and gas development, in addition to those that increase safety and improve operational practices.

9. Through our negotiations with oil and gas producers and the BLM, who manages the minerals, we have been able to develop better siting practices so that new wells would be drilled on existing well pads, limiting the amount of ancillary equipment and pipelines needed and minimizing the land that would be

affected by oil and gas operations. These agreements, however, do not encompass the safety and integrity of gathering lines.

Safety and Environmental Risks of Gathering Lines

10. I am aware that the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) finalized gathering line safety standards in a rule issued in November 2021. I understand these standards require operators of all onshore gas gathering lines to report incidents and file annual reports. I also understand safety standards will now extend to previously unregulated gathering lines and will vary based on the size of the pipeline and the potential consequences of a failure.

11. My understanding is that many of the gathering lines on the ranch have not previously been subject to PHMSA standards. I believe that PHMSA's new gathering line standards will extend to more lines on my property, including requiring reporting of incidents at all gathering lines. I believe that the gathering line rule will benefit my ranch and my family. For one thing, in my experience, regulated pipelines are fixed more rapidly than unregulated ones. In 2010, a pipeline approximately ten inches in diameter became exposed on my property due to erosion. At the time, I recall the pipeline employee explaining that the pipeline would be more quickly fixed because it was a "DOT line," which I believe meant it was subject to PHMSA regulations.

12. I am aware of the dangers that gathering lines pose to people, structures, and the environment. Many of the pipelines on my property were installed decades ago. Some are brittle, rusted, and exposed. Many no longer appear on current maps and cannot be located using common detection methods. I know a lot about pipeline explosions and accidents because I used to work as an insurance broker, risk manager, and claims investigator, and I came across pipeline-related accidents frequently—even some that resulted in fatalities. I understand the hazards that a pipeline can create, especially pipelines that are not maintained properly or are exposed through erosion or other causes. I was personally involved in the aftermath of these accidents in my previous career and saw the harm they can inflict on people.

13. I also know that gathering lines carry unprocessed gas, and I understand the health impacts associated with gas leakage from these lines. I am aware that, in addition to methane, unprocessed gas contains health-harming air pollutants like volatile organize compounds, benzene, and hydrogen-sulfide. Exposure to these pollutants can lead to a wide range of negative health impacts, including respiratory and skin irritation, neurological problems, dizziness, and headaches. In fact, some lines on my property even contain warnings about the toxic dangers they pose. The line pictured below is less than a quarter mile from

my house and transports natural gas containing benzene—a known human carcinogen.

14. I am also aware that natural gas leakage contributes to the formation of ground-level ozone or smog. Exposure to ozone negatively impacts human health and can lead to decreases in lung function, respiratory-related emergency room visits, and premature death. I am concerned about the health impacts that leakage from gathering lines may have on myself and my family members, some of whom are highly vulnerable. I am also concerned about the climate impacts of leaking methane which is eighty-six times more potent as a greenhouse gas than carbon dioxide.

Effect of Gathering Pipelines on the Ranch

15. Gathering lines exist across my property, on the adjacent BLM grazing land, and the surrounding areas. As described above, there are 122 wells

on my property and the surrounding land, and we estimate there are approximately 6 miles of gathering lines. Typically, there are about forty feet of above-ground piping from the wellhead to the meter run where the gathering line goes underground. The lines periodically resurface at pigging sites and "dog legs" on their way toward compressor stations and processing plants.

16. From my front porch, I can see the scars the pipelines leave on the land. The companies clear the easement areas and dig to bury the lines, leaving long-lasting and often permanent damage where vegetation was removed, soil was overturned, and canyon edges were bulldozed. We fight hard with companies to obtain fair compensation for this damage to the surface of our land when the lines are initially installed. After years of negotiation, we now have an agreement where one pipeline company makes a usage payment to us every five years for each lineal rod of pipeline. This agreement only requires the pipeline operators to pay us; it does not cover safety, pipeline integrity, or emergency response. We've been unable to obtain usage payments from another company, despite over twenty years of their continual usage of our land to transport gas.

17. I am regularly concerned while working and recreating on the ranch about the safety and environmental risks of gathering lines. I worry while horseback riding or hiking with my family members that we may be inhaling unhealthy air pollution if a pipeline or well is leaking nearby, and I worry about the

possibility that a pipeline could rupture and explode, causing harm to me or my family members. Jane and I feel that it is unfair that we bear this risk, and feel responsible for keeping ourselves safe, while pipeline operators have seemingly little responsibility to maintain their infrastructure.

18. Living and working in close proximity to gathering lines poses environmental and safety risks that I grapple with on a regular basis. For example, I participate in the U.S. Department of Agriculture's Natural Resources Conservation Service programs to improve and protect rangelands. As part of those programs, I am constantly seeking to improve grazing practices on my ranch. About five years ago, I planned to install a water line to facilitate additional cattle grazing. The planned route from the water source to the cattle pasture crossed a gathering line, so I contacted the company that owned the pipeline and asked them to place our water line across their gathering line. They declined, saying that was my responsibility. I was concerned for my personal safety and did not want to excavate under their line myself because of the risk of rupture or explosion if I accidentally hit their line. After repeatedly asking the company, we were able to persuade them to excavate under their own line and create a space for my water line to cross.

19. Another example of the environmental and safety threats I encounter from living in proximity to gathering lines occurred when we discovered an

exposed, large-diameter gathering line very close to our house in late 2018. For background, there is a small spring on our property that is a rare natural feature in our area—it provides vegetation and a water source for both wildlife and livestock, and we believe it is the only year-round spring in a 10-mile radius. My wife and I have therefore sought to protect it from degradation. In the early 2000s an operator planned to drill upstream of the spring, but sediment from drilling and production operations can negatively impact the springs, making them disappear and flow underground. We worked out an agreement with the operator to construct a sediment pond to preserve the spring, and during this time my wife Jane was able to cultivate a natural wetland around the spring and at the pond site. But the operating company did not maintain the sediment pond and it eventually filled with silt and overflowed, causing an eroded washout that damaged the wetland and exposed the gathering line near our home. This pipeline is pictured below.

20. After the line was exposed, debris and large rocks continually washed down and lodged against the ten-inch diameter pipeline, denting and degrading the metal. But it could have been even worse. The washouts could have easily ruptured the pipeline, which could have released gas and other harmful pollutants. According to the above-ground pressure gauge that I have looked at, this line fluctuates between 50 and 100 pounds per square inch, so large volumes of gas could be released in the event of a leak. A rupture could go undetected for long periods of time—emitting methane and other pollutants—or worse, could ignite and cause an explosion that could result in damage to my home, harm to my family, or lead to a wildfire.

21. I am interested in improved gathering line oversight and safety for a number of reasons. The first is that we are constantly working to improve our land and fear we will encounter lines we do not know about. Although I can obtain information about the location of pipelines directly on my property, this information is not easily accessible, and I do not have access to information about the location of pipelines on the BLM grazing land where I spend much of my time. Second, we fear that many of the lines have become rusted and embrittled and could explode or leak. With grandchildren and livestock constantly roaming the property, this is a serious concern for us. We are also concerned about the health and environmental effects that a pipeline leak could have. Finally, the lines close to our home are a particular concern. Companies have been slow to respond when we notify them of problems with lines on the property. I fear that a problem with a line near to our house might not be timely dealt with, and that Jane and I might be forced to leave until the company could fix the issue—or worse, that there could be a catastrophic rupture while we are home that could cause serious harm. I am constantly concerned about the possibility of an explosion, leak, or fire that could impact our residence or lead to bodily harm to me or my family members—or anyone else who visits us at home.

Importance of the PHMSA Gathering Lines Rule

22. I have a strong personal interest in increased gathering line oversight and integrity, to enhance the air quality and environment on my ranch and to improve safety. The annual and incident reporting requirements in PHMSA's rule will help me to better understand the lines near me, including their condition and the likely causes and response to any accidents that do occur. These standards would make Jane and I feel safer on a daily basis, giving us peace of mind knowing that incidents and negligent operators are being reported. They would also enable us to take safety precautions, like avoiding areas with older or degraded lines that are at higher risk of rupturing.

23. The extension of safety and emergency planning standards to larger lines and those close to rural residences is also important to me as someone who lives near gathering lines. I know the consequences of failure at larger lines, like those near my house, is significant and I fear that operators are not adequately inspecting and maintaining them currently. I know the PHMSA rule improves pipeline safety through emergency planning, damage prevention requirements, corrosion control standards, leak surveys, and line marking requirements for some lines. I want these standards to remain in effect, as I have personally experienced the dangers posed by corroded and exposed lines, and I also know the difficulties associated with unmarked lines.

24. I have a strong interest in the rule remaining in effect because its provisions to reduce pipeline leaks and ruptures—such as the leak survey and corrosion control standards—will also decrease methane emissions and other air pollution. Decreased air and climate pollution benefits the environment, and benefits my health and enjoyment of the land. I would be personally and directly harmed if the rule was not in effect because I feel that me, my family, and our property are at increased risk when more gathering lines are allowed to go unregulated; and I would be harmed by forgone climate and air quality benefits that I understand the rule will achieve. The PHMSA gathering lines rule benefits me, my family, our land, and the environment, and I therefore have a strong interest in the rule remaining in effect as finalized by PHMSA.

I declare that the foregoing is true and correct.

Dated: May 31, 2022

Francis Don Schreiber

DECLARATION OF DR. TAMMY THOMPSON

I, Dr. Tammy Thompson, declare:

1. I am a Senior Air Quality Scientist at EDF. I received a Ph.D. in Chemical Engineering, with a focus on atmospheric science and modeling, from the University of Texas at Austin. I also have a postdoc from the Massachusetts Institute of Technology and a Bachelor of Science in Chemical Engineering from the University of Florida. As a Senior Air Quality Scientist for EDF, my work involves advancing our air quality modeling capabilities around estimating source contributions to hyperlocal air pollution measurements, including in the oil and gas sector. Prior to joining EDF, I worked on a wide range of air quality issues as an atmospheric scientist in academia, as a fellow in the Environmental Protection Agency's Office of Policy, and with the Congressional Research Service. As a Research Scientist funded by the National Park Service, I investigated the impact of oil and gas production on air quality, and human and ecosystem health in National Parks.

PHMSA Gathering Lines Rule

2. It is my understanding that the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration's (PHMSA) recently finalized action, *Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other*

Related Amendments ("Final Rule"), establishes commonsense, long overdue standards for gas gathering pipelines—which transport unprocessed gas from production areas such as well sites to processing facilities—that are designed to enhance safety and protect the environment. I understand that there are over 435,000 miles of gathering lines in the U.S., and the Final Rule requires owners and operators of all onshore gas gathering lines to file annual reports and report incidents for the purpose of collecting data about gas gathering infrastructure, monitoring safety performance of unregulated gathering lines, and determining the need for future regulatory changes to address the risks to the public, property, and the environment posed by gas pipelines. I also understand that the Final Rule establishes a new category of regulated rural gathering lines—Type C—applicable to over 90,000 miles of pipeline, that are subject to emergency planning, damage prevention, and additional requirements depending on pipeline size and location.

VOCs Form Ground-Level Ozone, or Smog, that Harms Human Health

3. Ozone forms when VOCs and oxides of nitrogen (NOx) react in the presence of sunlight. This process becomes more pronounced in the summertime.

4. A longstanding body of scientific research, including numerous assessments by the U.S. Environmental Protection Agency (EPA),

demonstrates that exposure to ground-level ozone harms human health. In its 2013 Integrated Science Assessment for Ozone (2013 ISA), EPA concluded that "a very large amount of evidence spanning several decades supports a relationship between exposure to [ozone] and a broad range of respiratory effects."[1] These effects range from decreases in lung function among healthy adults to increases in respiratory-related hospital admissions and emergency room visits, to premature death.[2]

5. Multiple studies across various states (California, Georgia, North Carolina), counties (Maricopa County, AZ; Erie County, NY) and cities (Seattle, New York, Newark, Atlanta, Houston, Dallas, San Antonio, Austin, Indianapolis, St. Louis) have found that changes in ozone concentrations were associated with higher asthma emergency room visits, most at concentrations below the current standard.[3] These effects were strongest among children between five and eighteen years old in response to ozone concentrations of 31 to 54 parts per billion (ppb), well below EPA's current ozone standard of 70 ppb.[4] It is estimated that up to 11% of all asthma

[1] U.S. EPA, EPA/600/R-10/076F, *Integrated Science Assessment (ISA) of Ozone and Related Photochemical Oxidants*, at 1-6 (2013), *available at* https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492 ("2013 *ISA*").
[2] *Id.* at 6-131 to 6-158, 6-162 to -163.
[3] Stephanie Holm, John Balmes, Ananya Roy, *Human Health Effects of Ozone: The State of Evidence Since EPA's Last Integrated Science Assessment*, EDF 2018.
[4] US EPA, EPA/600/R-20/012, *Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants*, at IS-26 tbl.IS-4 (2020), *available at*

emergency room visits in the United States are attributed to ozone.[5] According to the Centers for Disease Control and Prevention (CDC), 24 million Americans currently have asthma.[6] Of these, 5.5 million are children and over half have uncontrolled asthma.[7] Asthma results in 1.6 million emergency room visits, 9.8 million visits to the physician,[8] and 188 thousand hospitalizations.[9] Asthma costs the U.S. economy more than $80 billion annually in medical expenses, missed work and school days, and deaths.[10]

6. Ozone pollution is particularly harmful for vulnerable populations, such as school-aged children, people with respiratory diseases or asthma, older adults, and people who are active outdoors, especially outdoor workers.[11]

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https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=348522 ("2020 *ISA*") (summarizing evidence from epidemiologic, controlled human exposure, and animal toxicological studies on the respiratory effects of short-term exposure to ozone).

[5] Susan C. Anenberg et al., *Estimates of the Global Burden of Ambient PM2.5, Ozone, and NO2 on Asthma Incidence and Emergency Room Visits*, Environmental Health Perspectives, 2018; 126 (10): 107004.

[6] CDC, *Fast Stats: Asthma*, https://www.cdc.gov/nchs/fastats/asthma.htm (last visited Sept. 8, 2020).

[7] *Id.*

[8] *Id.*

[9] CDC, *Most Recent National Asthma Data*, https://www.cdc.gov/asthma/most_recent_data.htm (last visited Aug. 26, 2020)

[10] Tursynbek Nurmagambetov, Robin Kuwahara, Paul Garbe, *The Economic Burden of Asthma in the United States, 2008 -2013*, Annals of the American Thoracic Society, 2018.

[11] 2013 *ISA* at 1-8.

Children with asthma also face heightened risks from ozone exposure. Many studies have demonstrated that children with asthma experience decrements in lung function and increases in respiratory symptoms when exposed to ozone pollution.[12]

7. The EPA has concluded that there is a causal relationship or likely causal relationship between both short- and long-term ozone exposure and a broad range of harmful respiratory effects in humans.[13] Short-term exposure is defined as hours, days, or weeks, and long-term exposure is measured in months to years.[14]

8. Short-term exposure to ozone can have critical health implications. For instance, there is evidence of an association between out-of-hospital cardiac arrests and short-term exposure to ozone.[15] Time scales of exposure up to three hours in duration and also at the daily level on the day of the event were significant. Other studies indicate higher rates of stroke in populations following higher exposures to ozone. A study in Allegheny County, Pennsylvania found that exposures to ozone on the current day increased

[12] K. Mortimer et al., *The Effect of Air Pollution on Inner-City Children with Asthma*, 19 EUR. RESPIRATORY J. 699 (2002), 2013 *ISA*, 6-120-21, 6-160.
[13] 2013 *ISA* at 1-5 to 1-8 & tbl. 1-1
[14] *Id.* at 1-4.
[15] Katherine B. Ensor et al., *A Case-Crossover Analysis of Out-of-Hospital Cardiac Arrest and Air Pollution*, 127 CIRCULATION 1192 (2013), https://pubmed.ncbi.nlm.nih.gov/23406673/.

the risk of total stroke hospitalization.[16] Another study in Nunces County, Texas found elevated risk of having a first stroke with higher ozone concentrations in the preceding two days.[17] Additional analyses support these conclusions.[18]

9. This evidence augments the long-standing body of literature demonstrating the serious impacts from short-term exposure to ozone pollution, including the increased risk of premature death.[19] EPA has recognized that positive associations have been reported between "short-term [ozone] exposures and respiratory mortality, particularly during the summer months."[20]

10. Long-term exposure likewise has critical health implications. EPA has concluded that there is "likely to be a causal relationship between long-term exposure to [ozone] and respiratory effects."[21] A recent study of 5,780

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[16] Xu X, Sun Y, Ha S, Talbott EO, Lissaker CT, *Association between ozone exposure and onset of stroke in Allegheny County, Pennsylvania, USA, 1994-2000*, Neuroepidemiology, 2013, 41(1):2-6.
[17] Wing JJ, Adar SD, Sánchez BN, Morgenstern LB, Smith MA, Lisabeth LD, *Short-term exposures to ambient air pollution and risk of recurrent ischemic stroke*, Environmental Research, Jan. 2017, 152:304-7.
[18] Shah, Anoop SV, et al., *Short term exposure to air pollution and stroke: systematic review and meta-analysis*, BMJ 350 (2015): h1295; Yang, Wan-Shui, et al., *An evidence-based appraisal of global association between air pollution and risk of stroke*, International Journal of Cardiology 175.2 (2014): 307-313.
[19] 2013 *ISA* at 1-14 (concluding that there is "likely to be a causal relationship between short-term exposures to [ozone] and total mortality").
[20] EPA, *National Ambient Air Quality Standards for Ozone*, 80 Fed. Reg. 65,292, 65,307 (Oct. 26, 2015); *see also* 2013 *ISA* 6-220 to 6-221.
[21] 2013 *ISA* at 1-8.

adults followed for a decade across six U.S. metropolitan regions found that long-term ozone exposure was significantly associated with development of emphysema. This was equal to that of 29 pack-years of smoking or three years of aging.[22] Additionally, in a study of eleven million Medicare enrollees in the southeastern United States, long-term ozone exposure was associated with increased risk of first hospital admission for stroke, chronic obstructive pulmonary disease, myocardial infraction, lung cancer, and heart failure.[23]

11. Similarly, EPA notes that "recent evidence is suggestive of a causal relationship between long-term [ozone] exposures and total mortality."[24] Some longitudinal studies have further demonstrated that "long-term [ozone] exposure influences the risk of asthma development in children."[25]

12. A recent study of almost 61 million Medicare patients conducted nationwide indicates a significant association between short- and long-term ozone exposure and all-cause mortality, with effects strongest in minorities and those of low socio-economic status. These effects were seen at ozone

[22] Wang, Meng, et al., *Association between long-term exposure to ambient air pollution and change in quantitatively assessed emphysema and lung function*, JAMA 322.6 (2019): 546-556.
[23] Yazdi, Mahdieh Danesh, et al., *Long-term exposure to PM2. 5 and ozone and hospital admissions of Medicare participants in the Southeast USA*, Environment International 130 (2019): 104879.
[24] 2013 *ISA* at 1-8.
[25] 2013 *ISA* at 7-2.

concentrations well below the current standard of 70 ppb.[26]

13. Health effects other than cardiovascular or respiratory are also likely. A 2017 study suggested that ozone exposure may be linked to approximately 8,000 stillbirths per year.[27] Studies carried out in California and Florida of over 4,000 births each found that elevated exposure to ozone during pregnancy was associated with higher risk of pre-term birth.[28] Prolonged exposure to ozone may also accelerate cognitive decline in the early stages of dementia.[29] There is now accumulating evidence that suggests that ozone exposure during pregnancy can result in Autism Spectrum Disorders among children.[30]

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[26] Di et al., *Air Pollution and Mortality in the Medicare Population*, NEW ENGLAND J. OF MEDICINE (June 29, 2017); Di et al., *Association of short-term exposure to air pollution with mortality in older adults*, JAMA (Dec. 26, 2017) 318(24):2446-56.

[27] Mendola et al., *Chronic and Acute Ozone Exposure in the Week Prior to Delivery is Associated with the Risk of Stillbirth*, 14 lNT'L J. ENVT'L RESEARCH AND PUB. HEALTH 731 (2017).

[28] Laurent O, Hu J, Li L, et al., *A statewide nested case-control study of preterm birth and air pollution by source and composition: California, 2001-2008*, Environ Health Perspect. 2016;124(9):1479-1486; Ha S, Hu H, Roussos-Ross D, Haidong K, Roth J, Xu X, *The effects of air pollution on adverse birth outcomes*, Environ Res. 2014;134:198-204.

[29] Galkina Cleary et al., *Association of Low-Level Ozone with Cognitive Decline in Older Adults*, 61 J. ALZHEIMERS DISEASE 1, 67-78 (2018).

[30] Becerra, Tracy Ann et al., *Ambient air pollution and autism in Los Angeles County, California*, Environmental Health Perspectives 121.3 (2012) 380-386; Volk HE, Lurmann F, Penfold B, Hertz-Picciotto I, McConnell R, *Traffic-related air pollution, particulate matter, and autism*, JAMA Psychiatry (Jan. 1, 2013) 70(1):71-7.

14. In 2015, EPA strengthened the national health-based standard for ground-level ozone, lowering the standard from 75 ppb to 70 ppb.[31] The record for that rulemaking, however, along with subsequent scientific studies, demonstrates that health effects can occur at much lower levels, especially in sensitive populations. For that reason, EPA's independent scientific advisors recommended that the agency establish the standard in the range of 60–70 ppb. Many health and medical associations suggested that lower standards may be appropriate.[32]

15. EPA has issued designations for counties that are not meeting the 2015 ozone standards, referred to as "ozone non-attainment areas."[33] According to EPA calculations, there are over 120 million people living in ozone non-attainment areas in the United States.[34] These individuals are at risk of acute respiratory illness and other damaging health outcomes due to unhealthy levels of ozone air quality. Additionally, given the evidence of

[31] EPA, *National Ambient Air Quality Standards for Ozone*, 80 Fed. Reg. 65,292 (Oct. 26, 2015).
[32] *Id.* at 65,321–23, 65,355.
[33] EPA, *Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards*, 82 Fed. Reg. 54,232 (Nov. 16, 2017); EPA, *Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards*, 83 Fed. Reg. 25,776 (June 4, 2018); EPA, *Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards-San Antonio, Texas Area*, 83 Fed. Reg. 35, 136 (July 25, 2018).
[34] EPA, *Summary Nonattainment Area Population Exposure Report*, https://www3.epa.gov/airquality/greenbook/popexp.html (last updated July 31, 2020).

adverse health effects even at levels below EPA's standard for ground-level ozone, the millions of Americans living outside of ozone nonattainment areas may also be at risk of experiencing the negative health effects of ozone exposure.

The Oil and Natural Gas Sector Is a Substantial Source of Smog-Forming Emissions

16. The oil and natural gas sector, including gathering lines, is a substantial source of smog-forming emissions. According to EPA's National Emissions Inventory (NEI), "Oil and Gas Production" is the largest source of human-caused VOCs nationally and a major contributor to NOx emissions.[35] Regional analyses likewise underscore the significant ozone-forming emissions from these sources, including work in the Uinta Basin in Utah,[36] the Barnett Shale in Texas,[37] the Upper Green River Basin in

[35] Calculation based on EPA, *National Emissions Inventory (NEI) Sector Data*, *available at* https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data.

[36] Warneke, C. et al., *Volatile organic compound emissions from the oil and natural gas industry in the Uintah Basin, Utah: oil and gas well pad emissions compared to ambient air composition*, 14 Atmos. Chem. Phys., 10977-10988 (2014), *available at* www.atmos-chem-phys.net/14/10977/2014/; ENVIRON, *Final Report: 2013 Uinta Basin Winter Ozone Study* (Mar. 2014), *available at* https://deq.utah.gov/locations/U/uintahbasin/ozone/docs/2014/06Jun/UBOS2013FinalReport/Title_Contents_UBOS_2013.pdf.

[37] David T. Allen, *Atmospheric Emissions and Air Quality Impacts from Natural Gas Production and Use*, Annu. Rev. Chem. Biomol. Eng. 5:55-75 (2014), *available at* https://www.annualreviews.org/doi/abs/10.1146/annurev-chembioeng-060713-035938.

Wyoming,[38] and in Colorado.[39]

17. Studies and analyses have linked ozone formation to emissions from oil and gas development. For example, a study by NOAA scientists at the Cooperative Institute for Research in Environmental Sciences (CIRES) found that, on high ozone days on Colorado's Northern Front Range, oil and gas operations contribute roughly 50% to regional VOC reactivity and that these activities are responsible for approximately 20% of ozone produced locally in the nonattainment area.[40] This CIRES study was one of

[38] *See* B. Rappengliick et al., *Strong wintertime ozone events in the Upper Green River basin*, Wyoming, Atmos. Chem. Phys. (2014), *available at* https://doi.org/10.5194/acp-14-4909-2014.

[39] Helmig, D., *Air quality impacts from oil and natural gas development in Colorado*, 8,4 Elem Sci. Anth. (2020), *available at* https://doi.org/10.1525/elementa.398; Brantley et al., *Assessment of volatile organic compound and hazardous air pollutant emissions from oil and natural gas well pads using mobile remote and onsite direct measurements*, Journal of the Air & Waste Management Association 1096-2247 (Print) 2162- 2906 (Online) (2015); Petron, G. et al., *A new look at methane and non-methane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesburg Basin*, 119 J. Geophys. Res. Atmos., 6836-6852 (2014), *available at* http://onlinelibrary.wiley.com/doi/10.1002/2013JD021272/full.

[40] McDuffie, E. E., et al. (2016), *Influence of oil and gas emissions on summertime ozone in the Colorado Northern Front Range*, J. Geophys. Res. Atmos., 121, 8712-8729, doi:10.1002/2016JD025265, *available at* http://onlinelibrary.wiley.com/doi/10.1002/2016JD025265/abstract; *see also* Gilman, J. B., B. M. Lerner, W. C. Kuster, and J. A. de Gouw (2013), *Source signature of volatile organic compounds from oil and natural gas operations in northeastern Colorado*, Environ. Sci. Technol., 47(3), 1297-1305, *available at* http://pubs.acs.org/doi/abs/10.1021/es304119a (finding 55% of VOC reactivity in the metro-Denver area is due to nearby oil and natural gas operations and calling these emissions a "significant source of ozone precursors"); Cheadle, LC et al., *Surface ozone in the Colorado northern Front Range and the influence of oil and*

many that was included in a review documenting over a decade's worth of research demonstrating multiple lines of evidence that link regional production of ozone with emissions from oil and gas operations in the Colorado Front Range. Another study analyzing ozone impacts associated with unconventional natural gas development in Pennsylvania concluded that "natural gas emissions may affect compliance with federal ozone standards."[41]

18. Studies have also documented high levels of wintertime ozone in locations with oil and gas production such as the Upper Green River Basin in Wyoming and the Uinta Basin in Utah.[42] VOC emissions from oil and natural gas operations are a critical factor driving wintertime ozone formation in these regions.[43] When combined with specific meteorological

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gas development during FRAPPE/DISCOVER-AQ in summer 2014, Elementa (2017), *available at* http://doi.org/10.1525/elementa.254 (finding on "individual days, oil and gas O3 precursors can contribute in excess of 30 ppb to O3 growth and can lead to exceedances" of the EPA ozone standards).

[41] Swarthout, R. F. et al., *Impact of Marcellus Shale natural gas development in southwest Pennsylvania on volatile organic compound emissions and regional air quality*, Environ. Sci. Technol., 49(5), 3175-3184 (2015), doi:10.1021/es504315f, *available at* https://www.ncbi.nlm.nih.gov/pubmed/25594231.

[42] *See* S.J. Oltmans et al., *O3, CH4, CO2, CO, NO2 and NMHC aircraft measurements in the Uinta Basin oil and gas region under low and high ozone conditions in winter 2012 and 2013*, Elementa (2016), *available at* http://doi.org/10.12952/journal.elementa.000132; B. Rappenglück et al., *Strong wintertime ozone events in the Upper Green River basin, Wyoming*, Atmos. Chem. Phys. (2014), *available at* https://doi.org/10.5194/acp-14-4909-2014.

[43] R. Ahmadov et al., *Understanding high wintertime ozone pollution events in an oil-natural gas-producing region of the western US*, Atmos. Chem. Phys. (2015),

conditions, including snow cover and temperature inversions, VOC emissions can produce winter ozone concentrations of nearly twice the EPA ozone standard.[44]

19. Gathering infrastructure represents a significant portion of the oil and gas sector and is a large source of health-harming emissions. Unprocessed gas that exists in the production segment and is transported through gathering lines contains greater amounts VOCs and HAPs than the processed gas that exists in downstream segments.[45] In fact, natural gas in the gathering segment has a lower average methane content than any other segment.[46] In 2011, EPA estimated that gas in the production segment consists of "approximately 83 percent methane, 4 percent VOC, and less than 1 percent HAP."[47] By comparison, EPA found that "the transmission segment, which included pipeline and sales gas (i.e., post processing), consisted of approximately 93 percent methane, 1 percent VOC, and less

available at https://doi.org/10.5194/acp-15-411-2015.

[44] ENVIRON, *Final Report: 2013 Uinta Basin Winter Ozone Study* (Mar. 2014), *available at* https://deq.utah.gov/air-quality/2013-uinta-basin-winter-ozone-study-final-report.

[45] Memorandum to U.S. EPA from Eastern Research Group. "Natural Gas Composition." November 13, 2018. Docket ID No. EPA–HQ–OAR–2017–0757.

[46] *Id.*

[47] Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review, 85 Fed. Reg. 57,018, 57,028 (Sept 14, 2020) (citing EPA, *Analysis of Average Methane Concentrations in the Oil and Gas Industry Using Data Reported Under 40 CFR part 98 Subpart W*, (April 9, 2020), https://www.regulations.gov/document/EPA-HQ-OAR-2017-0757-2682).

than 0.01 percent HAP."[48]

Oil and Natural Gas Operations Emit Hazardous Air Pollutants like Benzene, a Known Human Carcinogen

20. Oil and natural gas operations—including gathering lines transporting unprocessed gas—also emit several different hazardous air pollutants (HAPs) from equipment leaks, processing, compressing, transmission and distribution, and storage tanks. HAPs emitted from oil and gas operations include benzene, a known carcinogen.

21. There is no safe level of human exposure to many of the toxic pollutants released as a result of oil and gas extraction. Exposure to HAPs can cause cancer and seriously impair the human neurological system. For example, EPA has found that benzene, found naturally in oil and gas, is a "known human carcinogen (causing leukemia) by all routes of exposure, and . . . that exposure is associated with additional health effects, including genetic changes in both humans and animals."[49]

22. Further, a "number of adverse noncancer health effects including blood disorders, such as preleukemia and aplastic anemia, have also been associated with long-term exposure to benzene."[50] Along with benzene,

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[48] *Id.*

[49] EPA, *Regulatory Impact Analysis of the Final Emission Standards for New and Modified Sources in the Oil and Natural Gas Sector Sources* ("EPA RIA"), EPA-452/R-16-002, 4-33 (May 2016), available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0505-7630.

[50] *Id.* at 3-34.

EPA has also catalogued the harmful effects of other specific air toxics emitted from oil and gas operations, including toluene, carbonyl sulfide, ethylbenzene, mixed xylenes, n-hexane, and other air toxics.[51] Each of these hazardous pollutants is harmful to human health. For example, the serious health effects associated with exposure to toluene range from the dysfunction of the central nervous system to narcosis, with effects "frequently observed in humans acutely exposed to low or moderate levels of toluene by inhalation."[52]

Recent Studies Suggest Proximity to Oil and Gas Development Is Associated with Adverse Health Outcomes

23. Recent studies document associations between proximity to nonconventional oil and gas development and human health effects. While some of these studies do not evaluate concentrations of specific air pollutants, they document health effects that are consistent with exposure to smog and HAPs.

24. Analysis carried out by the Clean Air Task Force found that 2,000 asthma-related emergency room visits and over 600 respiratory-related hospital admissions nationally were due to ozone smog resulting from VOC and NOx emissions from oil and gas. A recent study published by scientists at EPA found that 1,900 deaths in the year 2025 may be attributable to oil and

[51] *See id.* 4-33 to 4-37.
[52] *Id.*

gas emissions.[53]

25. Children miss 500,000 days of school each year due to poor health associated with smog pollution.[54] A study of children in Pennsylvania found that exposure to unconventional natural gas development was associated with increased odds of pediatric asthma-related hospitalization.[55]

26. Air pollutants associated with oil and gas operations are known to cause serious health impacts in sensitive populations such as pregnant women, babies, and children. Studies have documented that living near natural gas sites is associated with lower birth weight babies[56] and preterm birth.[57] Other studies have found an association between oil and gas proximity and congenital heart defects in infants.[58] Congenital heart defects are the

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[53] Fann, Neal, et al., *Assessing human health PM2.5 and ozone impacts from US oil and natural gas sector emissions in 2025*, Environmental Science & Technology 52.15 (2018): 8095-8103, *available at* https://pubs.acs.org/doi/suppl/10.1021/acs.est.8b02050/suppl_file/es8b02050_si_001.pdf.

[54] Clean Air Task Force, *Gasping for Breath: An analysis of the health effects from ozone pollution from the oil and gas industry* (2016).

[55] Mary D. Willis, et al., *Unconventional natural gas development and pediatric asthma hospitalizations in Pennsylvania*, Environ Res. 166:402–408 (Oct. 2018), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6110967/.

[56] *See* Stacy, et al., *Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania*, PLoS ONE (June 3, 2015), *available at* https://doi.org/10.1371/journal.pone.0126425.

[57] Casey et al., *Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA*, Epidemiology (Mar. 2016), *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4738074/.

[58] McKenzie et. al., *Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado*, Envtl. Health Perspectives (Jan. 28, 2014)

leading cause of death due to birth defects.[59]

27. A 2018 study in Colorado found that communities living in close proximity to oil and gas activity had higher measured exposures to HAPs and face increased risks to their health, including a heightened risk of cancer.[60] The study found that the lifetime cancer risk was 8.3 per 10,000 people for populations living within approximately 500 feet of oil and gas activity, above EPA's allowable risk. The study also found elevated levels of acute and chronic blood system and developmental risks, and acute nervous system risks for the same population. Benzene exposures contributed to 80-95% of risks across the different health effects.

28. The health impacts described above may disproportionately affect minority communities living in the vicinity of oil and gas activity. For example, in Texas, there are over 800,000 Latinos living within half a mile of an oil or gas well, in Colorado nearly three out of ten people living near a well are Latino, and in California two out of five people living in close proximity to

("McKenzie 2014"), *available at* https://ehp.niehs.nih.gov/1306722/; McKenzie et al., *Congenital Heart Defects and Intensity of Oil and Gas Well Site Activities in Early Pregnancy*, Environment International (July 28, 2019) ("McKenzie 2019"), *available at* https://www.sciencedirect.com/science/article/pii/S0160412019315429.

[59] McKenzie 2019.

[60] Lisa McKenzie et al., *Ambient Non-Methane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks*, Envt'l Sci. & Tech. (Mar. 27, 2018), *available at* https://pubs.acs.org/doi/10.1021/acs.est.7b05983.

a well are Latino.[61] The 2020 study of birth outcomes in south Texas found that Hispanic women in the study were particularly vulnerable to the effects of flaring on preterm birth, noting that those findings were consistent with prior studies that found African Americans and residents of socioeconomically disadvantaged neighborhoods more vulnerable to the impacts of air pollution.[62]

PHMSA's Gathering Lines Rule Will Reduce Ozone-Forming and Other Harmful Air Pollution

29. Gathering pipelines are a significant source of methane emissions which often occur alongside emissions of health-harming air pollutants. Gathering lines carry unprocessed gas, meaning the contents of a leak generally contain a lower percentage of methane and a higher percentage of health-harming pollutants compared to natural gas in transmission and distribution pipelines and consumed in end-use sectors. Unprocessed gas can contain anywhere from 60-90% methane, while the remainder is composed primarily of VOCs and other health harming pollutants.[63] One study by

[61] *Latino Communities at Risk: The Impact of Air Pollution from the Oil and Gas Industry*, Clean Air Task Force (CATF), League of United Latin American Citizens (LULAC), National Hispanic Medical Association (NHMA) 2016.
[62] Laura J. Cushing et al., *Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas*, Environmental Health Perspectives 128(7) (July 2020), *available at* https://ehp.niehs.nih.gov/doi/pdf/10.1289/EHP6394.
[63] Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review, 85 Fed. Reg. 57,018, 57,028 (Sept 14, 2020) (citing EPA, *Analysis of Average Methane Concentrations in the Oil and Gas Industry*

Stanford University analyzed a basin-wide airborne survey of the New Mexico Permian Basin to evaluate medium-to-large point-source emissions and found that the majority of emissions came from well sites, including gathering pipelines.[64] Another study by Cusworth et. al conducted an extensive airborne campaign across the majority of the Permian basin over several months in 2019 to quantify methane point source emissions, and attributed sources to specific sectors or supply chain segments.[65] It found that although gathering and boosting infrastructure accounted for only 32% of emission *sources*, it nonetheless accounted for 38% of *total emissions* in the study.[66]

30. I am aware that the Final Rule establishes multiple new requirements that will benefit EDF members by improving the safety of gathering lines, reducing methane pollution that contributes to climate change, and reducing local air pollution that has negative health impacts. I understand that the Final Rule establishes annual and incident reporting requirements for all

Using Data Reported Under 40 CFR part 98 Subpart W, (April 9, 2020), https://www.regulations.gov/document/EPA-HQ-OAR-2017-0757-2682).

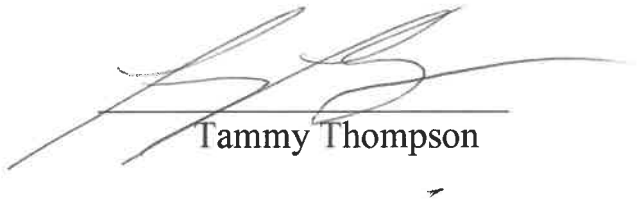
[64] Chen et. al, *Comprehensive aerial survey quantifies high methane emission from the New Mexico Permian Basin*, 8 (non-peer reviewed preprint submitted to EarthArXiv).

[65] Cusworth et. al, *Intermittency of Large Methane Emitters in the Permian Basin*, Environ. Sci. & Technol. Lett. 2021, 8, 569-570, available at https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.1c00173.

[66] *Id.*

gathering lines, which will improve transparency and accountability around incidents that pose health threats and release pollution. Reporting requirements will result in the collection of public information about gathering line operators, so that people living near gathering line infrastructure can better understand the safety record of nearby operators and can be aware of incidents that release harmful air pollution. This information would allow our members to take concrete steps to protect their health and safety, like seeking medical treatment after exposure and avoiding areas that may have high levels of pollution.

I declare that the foregoing is true and correct.



Tammy Thompson

June 1, 2022

[ORAL ARGUMENT HAS NOT BEEN SCHEDULED]
No. 22-1070

In the United States Court of Appeals
for the District of Columbia Circuit

GPA MIDSTREAM ASSOCIATION,
Petitioner,

v.

U.S. DEPARTMENT OF TRANSPORTATION & PIPELINE and HAZARDOUS MATERIALS SAFETY ADMINISTRATION,
Respondents.

RULE 26.1 DISCLOSURE STATEMENT

In accord with D.C. Cir. Rule 26.1, movant Environmental Defense Fund hereby states that it is a non-profit public interest organization; that it has no parent corporation; and that no publicly held entity owns 10 percent or more in it.