

**BRIEF of EARTHWORKS AS AMICUS CURIAE IN THE HEARING OF
THE PEOPLES' PERMANENT TRIBUNAL ON HUMAN RIGHTS,
FRACKING AND CLIMATE CHANGE**

HEARING DATES: May 14-18, 2018

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INTEREST OF AMICUS

Earthworks runs the Oil and Gas Accountability Project (OGAP) with the mission of using sound science to educate the public and promote solutions to the impacts of energy and mineral extraction. For thirty years, we have advocated for regulations and industry practices that are protective of human health and the environment. Earthworks has approximately 70,000 members in the United States who stand for clean air, water and land, healthy communities, human rights, and corporate accountability. We work for solutions that protect both the Earth's resources and our communities.

INTRODUCTION

Fracking emerged as a new threat to human rights in the early 2000s. From the start, “we immediately see that the human rights triggered in nearly any discussion on fracking operations cover the full spectrum of civil and political rights, to economic, social and cultural rights, to procedural rights, and finally on to new generation rights, such as the right to a healthy environment.”¹ The volume and speed of fracking worldwide has sped far ahead of the national and sub-national regulations and laws needed to protect human rights, to avoid environmental and climate harm, and prevent risks to human health.

Earthworks’ Community Empowerment Project (CEP) works closely with communities directly impacted by fracking and oil and gas extraction in key states in the United States. Partnering with these communities, we make the invisible visible by using an infrared camera to capture volatile organic compound (VOC) emissions (mostly methane) from neighboring oil and gas facilities and then bringing these findings to the relevant state regulators. Our community partners are fighting for their human rights everyday, and in many cases they are not sufficiently protected to avoid a wide range of harms considered international human rights norms. Drawing on Earthworks’ experience working with impacted communities in some of the largest shale formations in the United States, we will address the first two of the four questions (noted below) from the Peoples’ Permanent Tribunal on Human Rights, Fracking and Climate Change in an effort

¹ Taillant, J. et. al., *Human Rights and the Business of Fracking: Applying the UN Guiding Principles on Business and Human Rights to Hydraulic Fracturing*, The Center for Human Rights and Environment (CHRE/CEDHA), 2015, p46.

to illustrate some of the human rights norms that are most consistently violated by fracking and unconventional oil and gas extraction techniques.

1. First, under what circumstances do fracking and other unconventional oil and gas extraction techniques breach substantive and procedural human rights protected by international law as a matter of treaty or custom?
2. Second, under what circumstances do fracking and other unconventional oil and gas extraction techniques warrant the issuance of either provisional measures, a judgment enjoining further activity, remediation relief, or damages for causing environmental harm?

As research on the harms and dangers of fracking continues to expand in parallel with growing numbers of communities experiencing the first-hand impacts of fracking in their neighborhoods, the cases around the “questions of concern” suggested by the Peoples’ Permanent Tribunal on Human Rights, Fracking and Climate Change become stronger. In responding to the two questions listed above, we take into account recent developments in the science of both the “health case” and the “climate change case” for human rights violations due to fracking and unconventional oil and gas extraction.

1. ***The climate change case*** mounts as we learn that methane has an even greater warming effect than we thought: The vast majority of emissions from leaks, vents or non-combusted emissions from fracking are methane. In the end of 2016, a team of researchers found that each ton of methane emitted has an even ***greater warming effect***

than previously determined.² Accordingly, the loosely regulated fracking industry and the methane emissions that result are contributing to more rapid and greater climate change than we previously feared. This intensified climate change contributes to breaches of many fundamental human rights norms.

2. **The health case:** Unfortunately, the health case continues to strengthen as a result of the growing numbers of community members living with the daily health impacts caused by near-by fracking activities. A categorical assessment of peer-reviewed research from 2009-2015 on the public health impacts of fracking provides an overview of the harms to health that fracking consistently poses.³ Taking into consideration the 685 peer-reviewed papers review, negative health impacts from fracking were found in a majority of all three health categories: public health (84%), water quality (69%), air quality (87%).⁴ Extensive research on endocrine disruptors linked to fracking and oil and gas extraction was also recently published, finding that “Evaluation of 48 studies that sampled air near sites of UOG activity identified 106 chemicals detected in two or more studies. Ethane, benzene and n-pentane were the top three most frequently detected.”⁵ The body of public health research continues to grow at an alarming rate, exposing the dangers of living near fracking and unconventional oil and gas extraction.

² M. Etminan et al. *Radiative forcing of carbon dioxide, methane, and nitrous oxide: A significant revision of the methane radiative forcing*. AGU Publications, (Dec. 27, 2016), p12.

³ Hays, J., et. al. *Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015*. Plos One, 2016.

⁴ For a useful summary graphic representation of these findings, see, *The Science on Shale Gas Development - A Survey of the Environmental Public Health Literature*, Physicians, Scientists, and Engineers for Healthy Energy (April 2016).

⁵ Bolden, A. et. al. *Exploring the endocrine activity of air pollutants associated with unconventional oil and gas extraction*. Environmental Health. (2018).

Earthworks field research on the public health and environmental impacts of fracking and unconventional oil and gas extraction in the United States

Earthworks started the Community Empowerment Project (CEP) in 2014 to make methane pollution visible by using the same technology that industry and regulators use to detect leaks from oil and gas facilities, strengthen and enforce regulations, and work with the people who live with this air pollution to change industry practice.

Based on four years of field-testing, Earthworks developed a working model for CEP:

1. Identify and document polluting oil and gas facilities
2. Conduct and analyze air samples for specific pollutants
3. Identify noise levels
4. Record personal testimonials of impact
5. File and monitor formal complaints until leaks are fixed, equipment upgraded, or permits reviewed
6. Study state air permitting rules and review air quality permits of specific facilities
7. Report back to the community and use evidence to engage the media, regulators, and operators

As community groups use this evidence to file and monitor complaints with regulators, Earthworks' communications and policy teams use this same data to engage the media and EPA to take notice of how industry and state regulators are responding. This approach is working. In Colorado, evidence shows that regulators respond more quickly to citizen complaints than to routine inspection data collected by agency staff. Evidence from California and Texas shows that regulators act when residents make methane pollution visible using infrared cameras, file

complaints that target specific facilities, and monitor the response until the leaks are fixed. We have tracked more than **20** instances of where Earthworks' video evidence of polluting facilities, when submitted to agencies, resulted in emissions reductions through actions taken by regulators and through voluntary steps by operators.

To date, Earthworks has trained two certified optical gas imaging thermographers, documented air pollution from 734 different facilities in 15 states and 4 countries (U.S., Mexico, Canada, and Argentina), and publicly distributed more than 560 videos on YouTube as well as on an interactive map.⁶ We have recorded more than 100 stories of people who have been personally impacted by this pollution, made this evidence available on an oil and gas threat map, and generated more than 95 media stories in regional and national press. CEP has been a significant factor in influencing methane rules in the states of California, Colorado, and Pennsylvania, as well as the first federal regulations, to reduce methane emissions by 40-45% from 2012 levels by 2025 from new and modified oil and gas facilities.

CEP is particularly effective because for the first time, community groups have access to the same technology that industry and regulators use to detect methane leaks. CEP allows people to see the pollution that is the likely cause of their headaches, nosebleeds, respiratory problems, and other illnesses. We have chosen this approach because regulation and enforcement is inadequate for an industry where the majority of operators have been inattentive to methane leaks and emissions. Yet the people who live daily with air pollution are motivated to take action,

⁶ See Appendix 6 for a compilation of links to Earthworks' FLIR videos of oil and gas emissions throughout the United States.

and the public interest in addressing climate change can be directed toward potent methane emissions from oil and gas operations.

Our theory of change is that if a community is empowered with strong evidence, especially visual evidence, and if they use that evidence as part of a public response to oil and gas impacts, regulators are more likely to respond and the operator's behavior can change. Publicized effectively, the complaints backed by strong evidence can cause the operators in question to take action even before regulators act. Earthworks' strategy for state level advocacy, backed up by evidence and a complaints system, aims to strengthen state enforcement response by persuasion where cooperation is constructive, and by public exposure where cooperation is not constructive.

Earthworks' field research and experience with impacted communities provides extensive evidence to show that fracking breaches international human rights norms and warrants urgent issuance of regulatory and legal measures to prevent further human rights violations.

ARGUMENT

I. FRACKING AND UNCONVENTIONAL OIL AND GAS EXTRACTION TECHNIQUES BREACH SUBSTANTIVE AND PROCEDURAL HUMAN RIGHTS PROTECTED BY INTERNATIONAL LAW AS A MATTER OF TREATY OR CUSTOM

Mapping key international human rights instruments across 26 human rights norms directly triggered by fracking illustrates the extent of the human rights breaches fracking can cause.⁷ The following international instruments form the foundation of international human rights provisions.

Key International Human Rights Instruments:⁸

- *Universal Declaration of Human Rights (UDHR)*
- *International Covenant on Civil and Political Rights (CCPR)*
- *International Covenant on Economic, Social and Cultural Rights (CESCR)*
- *Convention on the Rights of the Child (CRC, 1990)*
- *Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)*
- *United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)*
- *Rio Declaration on Environment and Development*
- *The World Health Organization Declaration of Alma Ata*
- *The Nuremberg Code*

Drawing from this collective body of international human rights law, there are 26 human rights that are frequently breached as a result of fracking and unconventional oil and gas extraction.⁹

⁷ Kerns, Tom. *A Human Rights Assessment of Hydraulic Fracturing for Natural Gas*. Environment and Human Rights Advisory (2011), p11. See Appendix 1 for full assessment.

⁸ *Id.* at 11-12.

⁹ *Id.* at 12.

Human Rights Norms Relevant to Fracking¹⁰

1. Right to life, liberty and security of person.
2. Right to privacy and home
3. The family's right to protection.
4. Right to property
5. Right to work
6. Right to safe and healthy working conditions
7. Motherhood and childhood's right to special care
8. Duty to protect the child (i.e., persons under age 18)
9. Right of the child to the highest standard of health
10. Right of all persons to the highest standard of health
11. State's duty to provide for the health of citizens
12. State's duty to provide for the health of citizens demands coordinated efforts of all sectors.
13. Right to a healthy environment
14. Right to safe drinking water
15. Duty to encourage school attendance
16. Right to education
17. Right to effective remedy, redress and mitigation
18. Right to compensation
19. Right to know
20. Right to participation in decision-making in environmental issues
21. Right to lands and resources
22. Right to equal protection of the law
23. Right to freedom from discrimination due to disability (Americans with Disabilities Act)
24. Right to prior, free and informed consent
25. Right of experimental subjects to free and informed consent
26. Right of experimental subjects to be protected from injury, disability or death

Earthworks field research conducted in some of the most rapidly developing shale formations in the U.S. highlight the extent to which the 26 international human rights norms are regularly breached by fracking. Through our field experience with impact communities in heavily

¹⁰ Id. at 12.

fracked areas of the U.S., we have consistently found that “where oil and gas development goes, health problems often follow.”¹¹ In light of the fundamental human rights norms listed above, the following summary highlights findings on the health impacts and risks known by the industry, and the key changes needed from regulators and oil and gas operators to prevent harm to impacted communities.

Earthworks community health studies in oil and gas shale basins under intense extraction

In the last six years, Earthworks conducted several studies on the public health and environmental impacts of fracking and unconventional oil and gas extraction in the U.S. The following four field studies are particularly relevant to the question of human rights breaches due to fracking and oil and gas extraction.

1. 2012: Marcellus Shale, Pennsylvania¹²
 - a. Survey of 108 individuals living in 55 household in 14 counties.¹³
2. 2013: Eagle Ford Basin, Texas¹⁴
3. 2015: Marcellus and Utica Shale, Ohio, Pennsylvania, West Virginia & New York¹⁵
4. 2017: Eagle Ford Basin, Karnes County, Texas¹⁶
 - a. 2-part study:

¹¹ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), p5.

¹² See Appendix 2: Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (October 2012).

¹³ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), p9.

¹⁴ See Appendix 5: Wilson, S., et. al., *Reckless Endangerment While Fracking the Eagle Ford: Government fails, public health suffers and industry profits from the shale oil boom*, Earthworks (September 2013).

¹⁵ See Appendix 4: Steinzor, N. et al., *Wasting Away: Four states’ failure to manage gas and oil field waste from the Marcellus and Utica Shale*, Earthworks’ Oil & Gas Accountability Project (April 2015).

¹⁶ See Appendix 3: Villa, P., *Hazards in the Air: Relating reported illnesses to air pollutants detected near oil and gas operations in and around Karnes, Texas*, Earthworks (April 2017).

- i. “In-depth interviews with 18 Karnes County residents about their health and concerns for air quality impacts by oil and gas operations.
- ii. Air sampling at eight oil and gas facilities selected based upon community concerns for sensitive populations – e.g., daycare centers – adjacent to oil and gas operations, agency reports of violation, and/or volatile organic compound pollution detected by an optical gas imaging (OGI) camera (FLIR GasFinder 320)”¹⁷

Public health and environmental harm to communities impacted by fracking

As Earthworks discovered in our first community impact study in 2012 in the Marcellus Shale, “When many people in many places where gas development is occurring have similar health complaints, something is clearly wrong.”¹⁸ In the Marcellus Shale, and in subsequent impact studies in other areas of rapid growth in extraction activities, we found fracking and unconventional oil and gas extraction caused harm the human health due to air and water pollution, traffic, noise, and soil contamination.¹⁹ Specifically,

The data gathered through this project point to three central conclusions:

1. contaminants that are associated with oil and gas development are present in air and water in areas where residents are experiencing health symptoms consistent with such exposures;
2. there is a strong likelihood that residents who are experiencing a range of health problems would not be if widespread gas development were not occurring; and
3. by permitting widespread gas development without fully understanding its impacts to public health—and using that lack of knowledge to justify regulatory inaction—Pennsylvania and other states are risking the public’s health.²⁰

¹⁷ Villa, P., *Hazards in the Air: Relating reported illnesses to air pollutants detected near oil and gas operations in and around Karnes, Texas*, Earthworks (April 2017), p5.

¹⁸ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), p6.

¹⁹ *Id.* at p7.

²⁰ *Id.* at p31.

In the Eagle Ford Basin of Texas in 2017, our community impact study revealed the following alarming results from community interviews:

- 75% of interviewees with health issues reported neurological problems such as migraines, memory loss, forgetfulness, confusion or lack of focus, dizziness, and numbness in extremities.
- 50% reported respiratory problems including difficulty breathing, asthma, shortness of breath, pulmonary fibrosis, and chronic obstructive pulmonary disease (COPD).
- 89% expressed concern for environmental impacts on their health.²¹

In addition to the interview findings, air samples taken near oil and gas facilities revealed the following potent mixture of compounds known to cause neurological, respiratory and immunological problems:

- **Benzene:** A carcinogen, legally classified as a Hazardous Air Pollutant (HAP) under the Clean Air Act.
- **Hydrogen sulfide (H₂S):** A neurotoxic gas, that can cause chronic health effects in humans. Many industries are required to publicly report H₂S emissions to EPA's Toxics Release Inventory (TRI).²² However oil and gas production is exempt from TRI reporting.²³
- **Cyclohexane:** An eye, skin, and respiratory irritant that may affect the nervous system and cause death in high doses. It is regulated by the Texas Commission on Environmental Quality (TCEQ), but not the federal Environmental Protection Agency (EPA).
- **Naphthalene:** Hazardous to the liver, eyes, nervous system, and linked to increased risk of some cancers. It is on the EPA's list of HAPs under the Clean Air Act.
- **n-Hexane:** Classified by the EPA as a HAP, it can irritate the skin, eyes, and throat. In the long term, it can affect the central nervous system.

²¹ Villa, P., *Hazards in the Air: Relating reported illnesses to air pollutants detected near oil and gas operations in and around Karnes, Texas*, Earthworks (April 2017), p5.

²² EPA lifted a many year administrative stay in TRI reporting of H₂S in 2011. Federal Register. 76 FR 64022. Lifting of Administrative Stay for Hydrogen Sulfide. Retrieved from: <https://www.epa.gov/toxics-release-inventory-tri-program/lifting-administrative-stay-hydrogen-sulfide>.

²³ EPA is currently considering adding Natural Gas Processing Facilities to the TRI, this addition would not extend to oil and gas production however. Environmental Protection Agency. Addition of Natural Gas Processing Facilities to the Toxics Release Inventory Proposed Rule. Federal Register Citation: 82 FR 1651. Retrieved from: <https://www.epa.gov/toxics-release-inventory-tri-program/addition-natural-gas-processing-facilities-toxics-release>

- **Mixed xylenes:** Eye, nose, and throat irritants that also affect the nervous system. Xylenes are on the EPA's list of HAPs.²⁴

Despite the significant impacts on the health and environment of the neighboring communities, industry and operators knowingly continued intensive fracking and unconventional oil and gas extraction practices.

Known risks to human health and the environment by oil and gas operators

The complete lack of accountability for the industry or regulatory authority to determine the potential risks of fracking and unconventional oil and gas extraction was consistent across the regions. We found, “Even as knowledge of impacts evolves slowly, gas and oil extraction and production continue to accelerate rapidly – allowing industry to put still emerging technologies to use without first establishing their safety.”²⁵ Unfortunately, oil and gas regulators are not required to include a review of potential health impacts in their permit applications and very few oil and gas health impact assessments have been conducted in the U.S.²⁶ Ignoring the short and long term public health and environmental harms, “Across the Marcellus and Utica shale region, a “create now, figure it out later” view has guided the regulatory and policy response to a growing stream of drilling waste.”²⁷ Despite this ever-growing body of both field studies and peer-reviewed scientific studies,

regulators are not taking this public health threat seriously – as expressed in their lack of oversight, and in their inaction when problems are brought to their

²⁴ Villa, P., *Hazards in the Air: Relating reported illnesses to air pollutants detected near oil and gas operations in and around Karnes, Texas*, Earthworks (April 2017), p5.

²⁵ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), p5.

²⁶ *Id.* at p34.

²⁷ Steinzor, N. et al., *Wasting Away: Four states' failure to manage gas and oil field waste from the Marcellus and Utica Shale*, Earthworks' Oil & Gas Accountability Project (April 2015).

attention. Such inaction helps explain why communities across the nation are considering bans to fracking-enabled oil and gas development.²⁸

Earthworks' recommended changes to further harm to health and the environment

Drawing on Earthworks' first community health impact study, the key changes needed remain applicable for Earthworks' growing body of regional health impact studies in areas of intensive oil and gas extraction. The following significant changes are fundamental to prevent further harm to health and the environment, and avoid human rights violations:

- Give public a central role in gas development decisions
- Involve state and county departments of health
- Plan and pace permits
- Strengthen regulations
- Close the enforcement gap
- Reverse special exemptions in key provisions of U.S. environmental law
- Conduct baseline water testing and continuous air monitoring
- Develop new testing measurements
- Prohibit non-disclosure agreements (NDA's)²⁹

II. FRACKING AND OTHER UNCONVENTIONAL OIL AND GAS EXTRACTION TECHNIQUES WARRANT THE URGENT ISSUANCE OF EITHER PROVISIONAL MEASURES, A JUDGMENT ENJOINING FURTHER ACTIVITY, REMEDIATION RELIEF, OR DAMAGES FOR CAUSING ENVIRONMENTAL HARM

²⁸ Wilson, S., et. al., *Reckless Endangerment While Fracking the Eagle Ford: Government fails, public health suffers and industry profits from the shale oil boom*, Earthworks (September 2013).

²⁹ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), pgs 35-36.

Around the world, governments at the national, state/province, and local levels have enacted bans on fracking.³⁰ In the U.S., the examples of Vermont, New York and Maryland highlight the human rights they sought to protect by banning fracking at the state level. The state of Vermont was the first U.S. state to ban fracking in 2012. Vermont Governor Shumlin praised the fracking ban as a necessary step to “ensure that we do not inject chemicals into groundwater in a desperate pursuit for energy.”³¹ New York then banned fracking in New York in 2014. Following consideration of the public health impact assessment and several other reports conducted as part of the consideration of a potential ban on fracking, Howard Zucker, the New York Health Commissioner, explained “I cannot support high-volume hydraulic fracturing in the great state of New York [...] There are many red flags.”³² And finally, in 2017, Maryland weighed the risks of fracking and state Governor Hogan also came down in favor of a ban. Governor Hogan explained that “The possible environmental risks of fracking simply outweigh any potential benefits [...] Protecting our clean water supply and our natural resources is critically important to Marylanders, and we simply cannot allow the door to be open for fracking in our state.”³³

In the absence of a ban on fracking, Colorado courts are now in the process of guiding the state oil and gas regulatory agency, the Colorado Oil and Gas Conservation Commission (COGCC), to adjust their consideration of oil and gas permits and ensure they uphold their statutory obligation to “protect public health, safety, and welfare, including the environment.”³⁴ The

³⁰ Taillant, J. et. al., *Human Rights and the Business of Fracking: Applying the UN Guiding Principles on Business and Human Rights to Hydraulic Fracturing*, The Center for Human Rights and Environment (CHRE/CEDHA), 2015, p54.

³¹ CNN Wire Staff, *Vermont First State to Ban Fracking*, May 17, 2012. ([Article](#) accessed March 30, 2018.)

³² Goldenberg, S., *New York state to ban fracking over “red flags” to public health*, The Guardian, Dec. 17, 2014. ([Article](#) accessed March 30, 2018).

³³ Henry, D., *Maryland governor signs fracking ban into law*, Apr. 4, 2014, ([Article](#) accessed March 30, 2018).

³⁴ *Martinez v. COGCC*, 2017COA37, __ P.3d __ at p25 (Colo. App. 2017).

Colorado legislature has increasingly recognized the serious impacts of fracking and unconventional oil and gas extraction and amended the state statute to strengthen the protection of human health and environment. This represents a significant step towards shifting the burden to the industry to demonstrate that the proposed oil and gas extraction will take place in such a manner as to protect public health and the environment.

CONCLUSION

Fracking and unconventional oil and gas extraction causes extensive harm to human health and the environment, and also violates a long list of international human rights norms. The momentum already gained by the oil and gas industry is not going to slow down without significant actions from states. In light of insufficient regulation and limited enforcement, the state-level examples of either banning fracking or shifting the burden to the requesting operator to demonstrate that the proposed extraction will protect public health and environment offer potential paths forward to avoid harm and human rights norms violations from fracking in the future.

The health impacts documented by Earthworks' field studies underscored that the

precautionary principle is warranted when it comes to both current and future gas and oil development. In particular, this means shifting the burden of proof of whether harm is being caused to those proposing the action—the gas industry and promoters of gas development at all levels of policymaking—rather than it continuing to be borne by those directly, and negatively, affected.³⁵

If more states (at the national and sub-national levels) adopted the precautionary principle and measured the known risks (i.e. based on health impact assessments) in allowing fracking and unconventional oil and gas extraction, the extensive breaches of international human rights norms suffered worldwide by communities impacted by fracking could be reduced.

³⁵ Steinzor, N. et. al., *Gas Patch Roulette: How Shale Gas Development Risks Public Health in Pennsylvania*, Earthworks (2012), p37.

Respectfully submitted March 31, 2018.

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