

DISTRICT COURT, CITY AND COUNTY OF  
DENVER, COLORADO  
1437 Bannock Street, Room 256  
Denver, CO 80202

Plaintiffs: Xiuhtezcatl Martinez, Itzcuahtli Rosky-  
Martinez, Charlotte Buren-Hanley, Sonora Binkley,  
Aerielle Deering, Trinity Carter, Jamirah Duhamel, and  
Emma Bray, by and through their legal guardians

v.

Defendant: Colorado Oil and Gas Conservation  
Commission

▲ COURT USE ONLY ▲

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Case No: 2014CV32637

***AMICUS CURIAE* BRIEF OF KIDS AGAINST FRACKING *ET AL.*,  
IN SUPPORT OF PLAINTIFFS**

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## **INTEREST OF *AMICI***

Each *Amici*, as detailed below, has an interest in the subject matter of this case. All have organizational missions or personal interests that focus or depend on protecting public health, Colorado's natural resources, and the future of Colorado's children from dangerous oil and gas development.

**Kids Against Fracking** is working with local, state, and federal governments to ban hydraulic fracturing until it has been proven safe.

**Protect Our Loveland** is a grassroots, non-partisan, not-for-profit corporation in Colorado. Its mission is to protect the health and economic welfare of communities being adversely impacted by energy development based on fossil fuel extraction, by replacing fossil fuels with safe, clean, renewable and sustainable energy sources and conservation practices.

**Our Health, Our Future, Our Longmont** is working to protect Longmont's health, safety, and welfare from the dangers of fracking.

**Boulder County Citizens for Community Rights** is a group of concerned citizens who came together over the threat of hydraulic fracturing.

**350 Colorado** is working locally to help build the global grassroots movement to solve the climate crisis and transition to a sustainable future. Micah Parkin is the Executive Director of 350 Colorado and former director of Alliance for Affordable Energy.



**Frack Free Colorado** is a collaborative, grassroots movement that works to raise awareness about the dangers of fracking and enlighten Coloradans on ways that we can accelerate our move to renewable energy and sustainable living today.

**Food & Water Watch** is a non-profit organization that champions healthy food and clean water for all. Food & Water Watch stands up to corporations that put profits before people, and advocates for a democracy that improves people's lives and protects the environment.

**Be the Change** is a grassroots political organization that promotes progressive issues and candidates. Among other things, Be the Change supports stronger fracking regulations, community rights, and action on climate change. Phil Doe is the Environmental Director of Be the Change and works with Wes Wilson on public education and outreach.

**Public Employees for Environmental Responsibility** is a national non-profit alliance of local, state, and federal scientists, law enforcement officers, land managers, and other professionals dedicated to upholding environmental laws and values.

**Eco Elders** has a mission to protect the Earth, animals, and atmosphere for our children and grandchildren.

**Eco-Justice Ministries** is an ecumenical Christian organization, based in Denver, that advocates in churches for ecological sustainability and social justice.

**Casey Sheehan** is the former CEO of Patagonia.

**Rick Heede** is a founding director of The Climate Accountability Institute, which is a tax-exempt research and educational institute focusing on anthropogenic climate change, dangerous interference with the climate system, the contribution of fossil fuel producers' carbon production to atmospheric carbon dioxide content, and the risk and disclosure requirements of fossil fuel producers regarding past and future emissions of greenhouse gases.

**Dr. John Hughes, D.O.**, practices osteopathic and integrative medicine. His clinic, Aspen Integrative Medicine, Inc. provides the latest innovations in modern and natural medical care in Aspen and Basalt.

**Simón Mostafa** is a Ph.D. candidate in environmental engineering at the University of Colorado-Boulder (expected graduation: May 2015). He received bachelor's and master's degrees in environmental engineering from the University of Central Florida. His graduate research, supported by an EPA STAR Fellowship, focuses on photochemical processes in natural wastewater treatment systems.

**Karen Dike** is a retired register nurse from Longmont. She is a member of Our Longmont and the Sierra Club.

**Robert Winkler** is a resident impacted by oil and gas development living in Weld County Colorado.

## INTRODUCTION AND SUMMARY OF ARGUMENT

Plaintiffs Xiuhtezcatl Martinez *et al.* seek judicial review of agency action under the Colorado Administrative Procedures Act, Colo. Rev. Stat. § 24-4-106 (“APA”), namely, the decision of the Colorado Oil and Gas Conservation Commission (“COGCC” or “Commission”) denying Plaintiffs’ rulemaking petition (“Petition”) and denouncing their authority to protect the environment and public health and safety of Coloradans. Amici support Plaintiffs and provide this brief’s position.

As explained below, the Commission’s decision and explanation for its decision are directly contrary to the plain language and unambiguous legislative intent of Colorado’s Oil and Gas Conservation Act (“Act”). This Court should therefore declare: (1) the Commission has statutory authority to initiate a rulemaking addressing oil and gas drilling and development in Colorado; (2) this authority allows the Commission to cease issuing oil and gas drilling permits until such drilling is demonstrated to be “consistent with the protection of public health, safety, and welfare including protection of the environment and wildlife resources,” Colo. Rev. Stat. § 34-60-102(1)(a)(I); and (3) the Commission must ensure that all permits it *does* issue for oil and gas drilling are “consistent with the protection of public health, safety, and welfare including protection of the environment and wildlife resources.” *Id.* Accordingly, amici support Plaintiffs in

asking that the Court to reverse the Commission’s decision and remand the matter for further proceedings.

## ARGUMENT

### **I. THE COMMISSION HAS AUTHORITY TO PROMULGATE THE PLAINTIFFS’ PROPOSED RULE ADDRESSING OIL AND GAS DEVELOPMENT.**

Under APA review of the Commission’s decision, a “reviewing court may overturn an administrative agency’s determination only if the court finds the agency acted in an arbitrary and capricious manner, made a determination that is unsupported by the record, *erroneously interpreted the law*, or exceeded its constitutional or statutory authority.” *Chase v. Colorado Oil & Gas Conservation Comm’n*, 284 P.3d 161, 165 (Colo. App. 2012) (emphasis added), quoting *Sapp v. El Paso Cnty. Dep’t of Human Servs.*, 181 P.3d 1179, 1182 (Colo. App. 2008). Where, as here, the Commission’s decision contains errors of law, its decision is deemed arbitrary and capricious and must be set aside. *Giuliani v. Jefferson Cnty. Bd. of Cnty. Comm’rs*, 303 P.3d 131 (Colo. App. 2012); *Sheep Mountain Alliance v. Bd. of County Comm’rs, Montrose Cnty.*, 271 P.3d 597, 601 (Colo. App. 2011).

First, the Commission erred in concluding it did not have the statutory authority to grant the relief requested. The Colorado General Assembly (“Assembly”) has granted expansive statutory authority to the Commission to regulate all aspects of oil and gas development at the state level. C.R.S. §§ 34–60–

101–129. The Act mandates that in “foster[ing] responsible, balanced development” of oil and gas, the Commission must do so “consistent with the protection of public health, safety and welfare, including protection of the environment and wildlife resources.” C.R.S. § 34-60-102(1)(a)(I). Thus, the Commission not only has the authority to issue rules to regulate oil and gas drilling, C.R.S. § 34-60-105(1), but under some circumstances, it must do so.

Second, with respect to the Commission’s secondary finding that it is “currently addressing” many of the Petition’s concerns, *COGCC Decision* at p. 4, as a matter of law, the Commission cannot support its denial of rulemaking by pointing to other *discretionary* priorities or other agencies that may also have jurisdiction over some of the proposed rule. The Assembly delegated statutory authority over the regulation of oil and gas extraction to the Commission, and it cannot rely on other agencies to fulfill its statutory obligations. Certainly, other agencies may have overlapping authority, as is true in countless administrative settings at all levels of governance. However, this overlap does not affect the Commission’s obligation to meet *its* statutory mandates. Similarly, the Commission cannot skirt a clear legislative mandate by asserting that other concerns take discretionary priority. Where, as here, a legislature has unambiguously declared agency priorities, this Court should not defer to an agency interpretation that runs counter to that intent.

**A. The General Assembly Has Granted Statutory Authority to the Commission to Regulate Oil and Gas Development in Clear, Unambiguous Language.**

The Commission based its denial of Plaintiffs' Petition primarily on the assertion that it lacks statutory authority to grant a rule requiring oil and gas drilling permits to be issued consistent with the protection of public health, safety and welfare, including protection of the environment and wildlife resources. The Commission's conclusion reflects clear error of law in light of the plain language of the statute to the contrary, and this Court should not give that conclusion deference. The Assembly has unambiguously granted the Commission authority to regulate oil and gas extraction and to issue rules governing the issuance of drilling permits. Moreover, the Assembly has granted express authority for the Commission to promulgate rules to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources. C.R.S. § 34-60-106. The relief requested in the Petition falls squarely within the authority delegated to the Commission, and the Commission's denial of that authority amounts to an error of law.

The Oil and Gas Conservation Act ("Act"), C.R.S. §§ 34-60-101 to -129 (2012), vests authority in the Commission to regulate the oil and gas industry at the

state level. *Town of Milliken v. Kerr-McGee Oil & Gas Onshore LP*, --- P.3d ----, 2013 WL 1908965, 2-3 (Colo. App. 2013) (unpublished opinion), *cert denied* 2014 WL 1465027 (Apr. 14, 2014). *See also Board of Cnty. Comm'rs v. Bowen/Edwards Associates, Inc.*, 830 P.2d 1045, 1057 (Colo. 1992) (recognizing that at the *state* level, the Commission is the only agency authorized to regulate oil and gas operations).<sup>1</sup> The Commission's authority encompasses not only the technical aspects of the development and operation of oil and gas production, but also extends expressly to the protection of the health, safety, and welfare of the general public in the drilling and operation of oil and gas wells and production facilities:

The commission has the authority to regulate: . . . (d) Oil and gas operations so as to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources, taking into consideration cost-effectiveness and technical feasibility.

C.R.S. § 34-60-106(2). Likewise, the Commission has authority to regulate safety in well site operations. C.R.S. § 34-60-106(11)(a)(II) (“[T]he Commission shall . . . [p]romulgate rules . . . to protect the health, safety, and welfare of the general public in the conduct of oil and gas operations.”). *See also Town of Milliken*, 2013

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<sup>1</sup> The Supreme Court held that the grant of state authority to the Commission did not, however, preempt local control to protect public land use and the environment. *Id.* at 1057-1059.

WL 1908965, at \*3 (“[O]il and gas well site safety and security are matters subject to rule, regulation, order, or permit condition administered by the Commission.”).

The Commission itself has promulgated rules pursuant to this broad regulatory authority over public health and safety.<sup>2</sup>

The Act also enumerates authorities the Commission may employ to protect public health and the environment, including authority to:

- require oil and gas lessees to furnish reasonable security to protect surface owners from crop loss or damage, § 34–60–106(3.5), 14 C.R.S.;
- seek injunctive relief, § 34–60–109, 14 C.R.S., or monetary penalties against violators, § 34–60–121, 14 C.R.S.; and
- hold administrative hearings, issue cease and desist orders, and revoke and deny permits for the drilling of oil and gas, § 34–60–121, 14 C.R.S.

The Colorado Supreme Court has declared, with respect to these sections of the Act, “[t]he legislature has enacted a panoply of remedies to insure that oil and gas production in Colorado does not occur at the expense of the environment or surface owners.” *Gerrity Oil & Gas Corp. v. Magness*, 946 P.2d 913, 925 (Colo. 1997) (en banc). The relief requested in the Petition asks the Commission to make and

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<sup>2</sup> Oil & Gas Conservation Comm’n Rules 603(e)(7) (setting forth specific well-site fencing requirements “[f]or security purposes”); 201 (rules and regulations are promulgated to, among other things, protect public safety); and 306(d)(1)(A)(i) (the Commission shall consult with the Colorado Department of Health and Environment on a site location when a local government requests an assessment based on concerns regarding public health, safety, welfare, or environmental impact).



enforce a rule that ensures the protection of public health and the environment—an action that falls squarely within the plain language of this statutory authority.

The Commission in fact has expansive authority to carry out its statutory duties:

The commission has jurisdiction over all persons and property, public and private, necessary to enforce the provisions of this article, and has the power to make and enforce rules, regulations, and orders pursuant to this article, and *to do whatever may reasonably be necessary* to carry out the provisions of this article.

C.R.S. § 34-60-105(1) (emphasis added). The Colorado Supreme Court has recognized the Commission’s broad authority under the Act, stating that it “vests the commission with the authority to enforce the provisions of the act, to make and enforce rules and orders pursuant to the act, and to do whatever may reasonably be necessary to carry out the provisions of the act.” *Voss v. Lundvall Bros., Inc.*, 830 P.2d 1061, 1065 (Colo. 1992). Accordingly, the Commission’s claim that it lacks authority to take action as requested in Plaintiffs’ petition is without support.

**B. Where Oil and Gas Development Threatens Public Health, Safety, and Welfare, and the Environment and Wildlife Resources, the Commission Has an Obligation to Prioritize Protections to Those Interests.**

Not only does the Commission have authority to promulgate the requested rule; upon sufficient evidence or factual findings, the Commission has a statutory *obligation* to protect the public health, safety, and welfare including through the promulgation of rules. As described above, the plain language of the Act requires

the protection of public health, safety, and welfare—despite agency insistence that it may balance that protection against development interests. Further, as described below, the Act’s legislative history makes clear that development must be fostered *consistent with* the protection of public health and the environment. C.R.S. § 34-60-102(1)(a)(I). In addition, as discussed below, the construction of analogous administrative statutes reveals that the use of the phrase “consistent with” supports the conclusion that the statute mandates agency action under the circumstances of this case. Indeed, acting “consistent with” protections of public health, safety, and welfare may require mandatory rulemaking in the face of evidence of threats to those interests.

The legislative history of the Act reveals a legislative intent to “foster responsible, balanced development” in oil and gas “consistent with the protection of public health, safety and welfare, including protection of the environment and wildlife resources.” C.R.S. § 34-60-102(1)(a)(I). It is a long-standing principle of statutory construction that a statute be interpreted in a manner that gives effect to legislative intent or purpose. *Bowen/Edwards Associates, Inc.* 830 P.2d at 1059; *Colorado State Bd. of Land Comm’rs v. Colorado Mined Land Reclamation Bd.*, 809 P.2d 974, 983 (Colo. 1991); *Woodsmall v. Regional Transp. Dist.*, 800 P.2d 63, 67 (Colo. 1990); *Griffin v. S.W. Devanney & Co., Inc.*, 775 P.2d 555, 559 (Colo. 1989).

Originally enacted in 1951, the Act established the Commission to promote responsible development of the state's oil and gas resources. *Chase v. Colorado Oil & Gas Conservation Comm'n*, 284 P.3d 161, 165 (Colo. App. 2012). The Commission historically focused on increasing productivity of oil and gas resources. *Id.* For instance, in 1985 amendments, the predominant legislative concern was granting the Commission adequate rulemaking authority to protect the general public from accidents, gas leaks and explosions resulting from pumping oil and gas at subterranean depths, the primary threats understood at that time. *Bowen/Edwards Associates, Inc.*, 830 P.2d at 1059. In 1994, the Assembly further broadened the Act to shift the Commission's focus to consider environmental impact and public health, safety, and welfare. *Id.* at 166; *see also* § 34-60-102, C.R.S.2011; Ch. 317, sec. 2, § 34-60-102, 1994 Colo. Sess. Laws 1978. In accordance with this statutory shift, the Commission has adopted various rules and permit conditions in the past including safety setbacks from dwellings for wells and production equipment, blowout prevention equipment requirements, well and equipment safety specification and design standards, requirements for security fencing in high density areas, and special operations safety procedures. *Chase*, 284 P.3d 161. In 2007, the Assembly again shifted the Commission's primary purpose and today the agency exists to "foster the responsible, balanced development, production, and utilization of the natural resources of oil and gas in the state of

Colorado in a manner consistent with protection of public health, safety, and welfare, including protection of the environment and wildlife resources.” § 34–60–102(1)(a)(I), C.R.S. 2011; *Chase*, 284 P.3d at 166. The Act’s evolution thus reveals a legislative intent to give the Commission increasingly broad authority to issue rules to protect the environment and public health, safety, and welfare in the context of oil and gas drilling.

The Commission suggests that the Act as written gives the agency discretion to freely balance competing priorities. Instead, however, the Act anticipates a primary objective—development “consistent with” protection of the public health and environment—with additional secondary priorities.<sup>3</sup> This interpretation of the phrase “consistent with” appears throughout federal law interpreting agency authority. *See, e.g., Natural Resources Defense Council, Inc. v. Daley*, 209 F.3d 747, 753 (D.C. Cir. 2000) (quoting U.S.C. § 1851(a)(8)) (discussed *infra*). The Magnuson Stevens Act, for example, houses dual objectives to both prevent overfishing and to minimize economic impacts of regulation on fishery communities. Under the statute, fishery management plans can take into account the effect of those plans on fishing communities, “*consistent with the conservation requirements*” of the statute. *Daley*, 209 F.3d at 753 (quoting U.S.C. §

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<sup>3</sup> These secondary priorities are also expressed in the language of the statute. For example, the statute contemplates balancing oil and gas development with wildlife conservation. C.R.S. § 34-60-102 (1)(a)(II)-(IV).

1851(a)(8)). The D.C. Circuit held that the plain language of the statute, despite its inclusion of an economic objective, required the agency to give priority to the conservation measures.<sup>4</sup> Likewise, here, the Commission must give priority to the protection of public health, safety, and welfare, despite its dual objectives under the Act. If the Assembly intended to allow the Commission to balance oil and gas interests against public health and environmental protection, it would need to say so explicitly. That would be a very different law than the one at issue here.

**C. The Commission Cannot Sidestep Statutory Mandates by Pointing at Other Agencies or Priorities.**

The Commission claims that it properly denied the rulemaking Petition because other agencies are addressing Petitioners' concerns. Specifically, the Commission concluded that the authority to issue the requested rule falls within the jurisdiction of the Colorado Department of Public Health and the Environment ("CDPHE"). *Decision* at p. 4.

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<sup>4</sup> Likewise, the Hazardous Substances Act, 15 U.S.C.A. § 1262, allows exemptions from the Act's main protections where those exemptions are "consistent with adequate protection of the public health and safety." *Id.* Similarly, in the Food and Drug Act, 21 U.S.C.A. § 360j, "[i]t is the purpose of this subsection to encourage, to the extent *consistent with the protection of the public health and safety and with ethical standards*, the discovery and development of useful devices intended for human use and to that end to maintain optimum freedom for scientific investigators in their pursuit of that purpose." *Id.* (emphasis added). These statutes were enacted entirely for the protection of public health and safety. The same statutory construction should apply here, where the General Assembly chose language to protect Colorado from threats to public health and safety in oil and gas drilling on par with the kinds of dangers inherent in hazardous substances and drugs.

The CDPHE’s obligations, however, have no effect on the statutory obligations of the Commission. The Assembly granted express statutory authority to the Commission to protect the public’s health and welfare in the face of oil and gas drilling, and the Commission cannot shirk its environmental responsibilities by pointing to the wholly independent mandates of other agencies. *See Massachusetts v. E.P.A.*, 549 U.S. 497, 531-32 (2007) (“The two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency.”).<sup>5</sup>

The Commission also points to competing priorities within its own agency as justification for the denial of the rulemaking Petition. As discussed above, however, the plain language of the statute requires the Commission to prioritize the protection of public health, safety, and welfare over the responsible, balanced development of oil and gas.

If this Court concludes that the Commission has the discretion to initiate a rulemaking or not, the Commission has not exercised that discretion here. Rather,

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<sup>5</sup> In *Massachusetts v. EPA*, the EPA similarly concluded that it couldn’t regulate carbon dioxide emissions from motor vehicles because such a rule would require the agency to tighten mileage standards and that role had been assigned to a separate agency. *Massachusetts*, 549 U.S. at 531-32. The Court concluded that the role of other agencies had no import on the EPA’s duties:

[T]hat [another agency] sets . . . standards in no way licenses [this agency] to shirk its environmental responsibilities. [This agency] has been charged with protecting the public’s “health” and “welfare,” . . . a statutory obligation wholly independent of [other agency mandates.] *Id.* at 531-32.

the Commission claimed it had no authority to exercise such discretion one way or another. And even if the Court finds that the Commission did exercise its discretion upon denying Plaintiffs’ petition, the Commission failed to give a legally sufficient explanation for its decision. “[O]nce [the agency] has responded to a petition for rulemaking, its reasons for action or inaction must conform to the authorizing statute.” *Massachusetts v. E.P.A.*, 549 U.S. at 533. “To the extent that this constrains agency discretion to pursue other priorities of the Administrator . . . this is the [legislative] design.” *Id.* Although an agency may set priorities and allocate resources, it cannot do so outside the four corners of the statute under which it operates. The Commission’s skeletal decision—based entirely on erroneous legal conclusions—fails to contain information and justification sufficient for this Court to conclude that the Commission’s decision falls within the four corners of the Act.

In sum, the Commission’s decision to deny Plaintiffs’ rulemaking Petition was based on several errors of law. The Commission has been granted broad authority to issue and enforce rules and do “whatever may reasonably be necessary” to carry out its statutory duty. C.R.S. § 34-60-105(1). The plain language of the Colorado Oil and Gas Conservation Act authorizes the Commission to foster oil and gas development only when “consistent with the protection of public health, safety, and welfare, including protection of the

environment and wildlife resources.” C.R.S. § 34-60-102. Where oil and gas extraction threatens those protections, the Commission cannot grant permits that are inconsistent with its obligations. Even assuming the Commission has discretion to prioritize oil and gas development—despite plain language revealing legislative intent to prioritize the protection of public health, safety, and welfare—the Commission has not exercised that discretion here. Instead, the Commission erroneously concluded that the requested relief is, as a matter of law, beyond the scope of its expansive legislative authority to regulate oil and gas extraction. The Commission has erred as a matter of law, and its decision must be remanded as arbitrary and capricious agency action.

## **II. OIL AND GAS DEVELOPMENT IN COLORADO IS ENDANGERING PUBLIC HEALTH, SAFETY, AND WELFARE AND DAMAGING THE ENVIRONMENT AND WILDLIFE RESOURCES.**

The rapid expansion of oil and gas development in Colorado, and the growth of hydraulic fracturing (“fracking”) in particular, is raising serious and legitimate concerns about the impacts of oil and gas development on public health, the environment, and wildlife. Yet, the Commission continues to allow oil and gas development at an alarming rate and without proper safety measures. Petition for Rulemaking, p. 7-12; 43-45. Until the Commission can demonstrate through substantial evidence that it is fulfilling its statutory obligation to protect “public health, safety, and welfare, including protection of the environment and wildlife



resources,” it should not continue to permit oil and gas development. C.R.S. § 34–60–102(1)(a)(I). As outlined below, there is a robust body of scientific evidence, much of it from Colorado, which documents the adverse impacts of oil and gas development on public health, the environment, and wildlife. To the extent that any uncertainties exist about the full impacts of oil and gas development and hydraulic fracturing, the Commission must err on the side of caution, as the State of New York did recently,<sup>6</sup> and adopt a moratorium on oil and gas development while it conducts a full review of the evidence. Oil and gas development should only be allowed to resume when, and if, it can be done safely without adversely impacting human health and the environment.

**A. Oil and Gas Development in Colorado is Endangering Public Health, Safety, and Welfare.**

Oil and gas development is adversely impacting the health, safety, and welfare of Coloradans in numerous ways. Fracking is a particularly harmful and unsafe method of extracting oil and gas that is now pervasive in Colorado, despite the dangers associated with it. Fracking involves injecting highly pressurized

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<sup>6</sup> Following a report issued by the New York State Department of Health on the public health impacts on hydraulic fracturing, Governor Cuomo banned hydraulic fracturing in New York. See New York State Department of Health, *A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development*, (Dec. 2014), available at [http://www.health.ny.gov/press/reports/docs/high\\_volume\\_hydraulic\\_fracturing.pdf](http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf). Vermont has also banned hydraulic fracturing, as have many local governments across the country.

liquid, made of water, sand, and chemicals, into a drill hole in order to fracture rocks and release the oil or methane trapped in the rocks. The sand is used to hold open the micro-fractures in the rock while the chemicals work to reduce friction, extend fractures, and more effectively deliver the fracking liquid into the rock formation.

Hydraulic fracturing involves the use of more than 750 known chemicals, and of these, more than 100 are known or suspected endocrine disrupters<sup>7</sup> and others are toxicants and/or carcinogens.<sup>8</sup> Fracking fluids contain harmful chemicals and volatile organic compounds (VOCs) including hydrogen sulfide, benzene, ethylbenzene, toluene, mixed xylenes, *n*-hexane, carbonyl sulfide, ethylene glycol, and 2,2,4-trimethylpentane, which are classified by the United States Environmental Protection Agency (EPA) as hazardous air pollutants or air toxics, and some are known carcinogens.<sup>9</sup> Other harmful air pollutants released from oil and gas development, including sulfur dioxide, nitrogen oxides, carbon

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<sup>7</sup> Endocrine-disrupting chemicals are linked to many adverse health impacts, including decreased fertility, increased incidences of cancer, lower sperm quality and quantity, reproductive tract deformities, reduced bone density, among others. Christopher D. Kassotis et al., *Estrogen and Androgen Receptor Activities of Hydraulic Fracturing Chemicals and Surface and Ground Water in a Drilling-Dense Region*, 155 *Endocrinology* 897, 897-98 (2014).

<sup>8</sup> *Id.* at 898.

<sup>9</sup> Environmental Protection Agency (EPA), About Air Toxics, available at <http://www.epa.gov/ttn/atw/allabout.html> (last visited Mar. 12, 2015); Chelsea R. Thompson et al., *Influence of Oil and Gas Emissions on Ambient Atmospheric Non-Methane Hydrocarbons in Residential Areas of Northeastern Colorado*, 2 *Elementa: Sci. Anthropocene* 1, 10 (2014).

monoxide, fine particulate matter (PM<sub>2.5</sub>), and ground-level ozone, are classified as criteria air pollutants by the EPA.<sup>10</sup>

The health impacts associated with exposure to these chemicals and pollutants include cancer; cardiovascular, respiratory, neurologic, and developmental damage; and other adverse impacts such as premature mortality, anxiety and stress, and lost work and school days.<sup>11</sup> According to one study, 75% of the fluids used for hydraulic fracturing could impact people's skin, eyes, other sensory organs, and their respiratory and gastrointestinal systems.<sup>12</sup> The same study found that approximately 40-50% of the chemicals used could affect the brain/nervous system, immune and cardiovascular systems, and the kidneys, while 25% of the chemicals could cause cancer and mutations.<sup>13</sup> Humans are exposed to these chemicals both through the contaminated water they drink or otherwise come into contact with, as well as through the air they breathe, and sometimes, through direct contact with the chemicals.

Chemicals and pollutants from oil and gas development are contaminating surface water, groundwater, and drinking water sources in various ways. Water

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<sup>10</sup> EPA, National Ambient Air Quality Standards (NAAQS), *available at* <http://epa.gov/air/criteria.html> (last visited Mar. 12, 2015).

<sup>11</sup> Bob Weinhold, *The Future of Fracking: New Rules Target Air Emissions for Cleaner Natural Gas Production*, 120 *Env'tl Health Perspectives* A272, A274 (2012), *available at* <http://ehp.niehs.nih.gov/120-a272/>.

<sup>12</sup> Theo Colborn et al., *Natural Gas Operations from a Public Health Perspective*, 17 *Human & Ecological Risk Assessment* 1039 (2011).

<sup>13</sup> *Id.*

contamination can occur from spills and leaks during the transportation and handling of fracking fluids, drill hole leaks, and drill site discharges. Fluid from hydraulically-fractured wells can migrate through natural and newly created fractures to contaminate underground aquifers and drinking water sources.<sup>14</sup> The disposal of fracking wastewater in underground storage wells, landfills, wastewater treatment plants, and evaporation pits also contaminates surface water, groundwater, and drinking water.<sup>15</sup> One study from Garfield, Colorado found that water samples from sites near natural gas activities had greater estrogen receptor activities than water samples from sites where drilling was absent.<sup>16</sup> Recent water sampling of fracking wastewater in California found benzene levels in almost all water samples that ranged from twice to more than 7,000 times drinking water standards.<sup>17</sup> A 2011 draft EPA report found that chemicals used for hydraulic fracturing had contaminated groundwater wells and domestic waters supplies in Pavillion, Wyoming.<sup>18</sup>

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<sup>14</sup> Tom Myers, *Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers*, Nat'l Ground Water Ass'n (2012), available at <http://catskillcitizens.org/learnmore/Fracking-Aquifers.pdf>.

<sup>15</sup> Ellen Webb et al., *Developmental and Reproductive Effects of Chemicals Associated with Unconventional Oil and Natural Gas Operations*, 29(4) Rev. Env't'l Health 307, 310 (2014).

<sup>16</sup> Kassotis et al., *supra* note 7, at 904.

<sup>17</sup> Environmental Working Group, *Toxic Stew: What's in Fracking Wastewater*, (Mar. 10, 2015), available at <http://www.ewg.org/research/toxic-stew/chemicals-waste-included-carcinogens-and-neurotoxins>.

<sup>18</sup> See Kassotis et al., *supra* note 7 at 898.

One troubling trend in Colorado (and elsewhere) is water contamination that occurs from spills and leaks of hydraulic fracturing liquids from storage pits and tanks, trucks, and the drilling process. Between 2008 and 2013, companies reported over 2000 oil and gas spills in Colorado, hundreds of which contaminated groundwater.<sup>19</sup> Following one particularly noteworthy spill in 2013, it was reported that, “[a]n underground plume of toxic hydrocarbons from an oil spill north of the Colorado River near Parachute has been spreading for 10 days, threatening to contaminate spring runoff.” The September 2013 flooding along Colorado’s Front Range resulted in widespread damage to oil and gas wells and other infrastructure and led to the release of fracking fluids and chemicals from at least 10 sites.<sup>20</sup>

In addition to all the chemicals added to fracking fluids, hydraulic fracturing mobilizes toxicants that occur naturally underground, such as heavy metals (e.g., lead and arsenic), volatile organics, and radioactive compounds (e.g., radon,

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<sup>19</sup> Bruce Finley, *Water Fouled with Fracking Chemicals Spews Near Windsor*, The Denver Post (Feb. 14, 2013), [http://www.denverpost.com/ci\\_22586154/water-fouled-fracking-chemicals-spews-near-windsor](http://www.denverpost.com/ci_22586154/water-fouled-fracking-chemicals-spews-near-windsor).

<sup>20</sup> Mark Jaffe & Bruce Finley, *State Now Tracking 10 Oil and Gas Spills in Colorado Flood Zones*, The Denver Post, (Sept. 19, 2013), [http://www.denverpost.com/environment/ci\\_24132296/oil-spill-along-st-vrain-river-near-platteville](http://www.denverpost.com/environment/ci_24132296/oil-spill-along-st-vrain-river-near-platteville).

uranium, chromium) and returns them to the surface.<sup>21</sup> The contaminated water that returns to the surface, flowback water, is frequently stored in evaporation ponds, and these ponds have a history of leaking and contaminating soil and water, which has led to documented instances of fish and livestock deaths.<sup>22</sup>

Not only are chemicals and pollutants from oil and gas development contaminating the water, but they are also polluting the air people breathe and contributing to an overall decrease in air quality. Drilling operations, exhaust from truck traffic and heavy machinery, venting and flaring of natural gas, and pipeline leaks all result in emissions of methane, volatile organic compounds, particulate matter, and other air contaminants directly into the air that Coloradans breathe.

Benzene is the volatile organic compound that has been identified as the largest contributor to an increased risk of cancer risk for people living near oil and gas wells.<sup>23</sup> Benzene is a known human carcinogen and linked to immune

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<sup>21</sup> Michelle Bamberger & Robert Oswald, *Impacts of Gas Drilling on Human and Animal Health*, 22(1) *Scientific Solutions* 51, 53 (2012); Kassotis et al., *supra* note 7.

<sup>22</sup> Jake Hays & Adam Law, *Public Health Concerns of Shale Gas*, Physicians for Social Responsibility (2012), available at <http://www.psr.org/environment-and-health/environmental-health-policy-institute/responses/public-health-concerns-of-shale-gas-development.html> sup.

<sup>23</sup> Lisa M. McKenzie et al., *Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources*, 424 *Sci. Total Env't* 79, 83 (2012).

dysfunction, asthma, preterm birth, and other adverse health impacts.<sup>24</sup> One scientific study found a strong benzene signature in air from northeastern Colorado where oil and gas operations are the primary activity that produce benzene.<sup>25</sup>

Other air pollutants emitted during natural gas development, such as particulate matter, sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>), have been linked to additional harmful health impacts.<sup>26</sup> A scientific study from Colorado linked these pollutants, as well as benzene, to low birth weight for babies and preterm births.<sup>27</sup> The study “found positive associations between density and proximity of natural gas wells within a 10-mile radius of maternal residence and birth prevalence of CHDs [congenital heart defects] and possibly NTDs [neural tube defects].”<sup>28</sup> Another study found that chemicals used in hydraulic fracturing are associated with impaired sperm quantity and quality as well as chromosomal abnormalities.<sup>29</sup>

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<sup>24</sup> Gabrielle Pétron et al., *Hydrocarbon Emissions Characterization in the Colorado Front Range: A Pilot Study*, 117, *J. Geophysical Research* 1, 3 (2012).

<sup>25</sup> *Id.* at 17.

<sup>26</sup> Lisa M. McKenzie et al., *Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado*, 122 *Envtl. Health Perspectives* 412, 412 (2014).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at 414.

<sup>29</sup> Webb et al., *supra* note 15, at 310.

Additionally, scientific evidence shows that emissions from oil and gas development lead to poor air quality and contribute to high ozone episodes.<sup>30</sup> High levels of ozone can cause severe respiratory distress, shortness of breath, coughing, damaged airwaves, and respiratory illnesses such as asthma, emphysema, and chronic bronchitis.<sup>31</sup> One study from Erie, Colorado concluded that oil and gas emissions have a “large-scale regional impact” on air quality and are an important contributor to ozone precursors along the Northern Front Range.<sup>32</sup> This is particularly noteworthy because the Front Range has been designated as a federal ozone non-attainment area.<sup>33</sup> Despite some efforts by the Commission to reduce air pollution from wells, the growing number of wells means that even if the volume of emissions per well decreases, the overall air quality will not improve.<sup>34</sup>

Beyond the water and air contamination that is occurring, oil and gas development is also adversely impacting the quality of life for many Coloradans. While oil and gas development used to primarily occur in rural areas, it is now common for hydraulic fracturing to take place in developed areas. By the Commission’s own estimates, at least 26% of the 53,000 active oil and gas wells in Colorado are located within 150-1000 feet of buildings intended for human

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<sup>30</sup> Thompson et al., *supra* note 9, at 1-2.

<sup>31</sup> *Id.* at 3; EPA, Ground-level Ozone: Health Effects, *available at* <http://www.epa.gov/air/ozonepollution/health.html> (last visited Mar. 12, 2015).

<sup>32</sup> Thompson et al., *supra* note 9, at 14.

<sup>33</sup> *Id.* at 1.

<sup>34</sup> *Id.* at 15.



occupancy.<sup>35</sup> Some wells in Erie, Colorado are located as close as 15 feet from residential structures.<sup>36</sup> While hydraulic fracturing has adverse impacts no matter where it occurs, there are additional harms associated with hydraulic fracturing when it occurs in residential areas.

Thousands of heavy and light-duty truck trips are required for each well. These trucks emit fine diesel particulate matter, nitrogen oxides, and VOCs and the increased traffic can lead to disruptions in life.<sup>37</sup> Additionally, the industrial activities associated with oil and gas development are responsible for noise pollution and light pollution that disrupts people living nearby and can have tangible impacts on the health, including an increase in stress. One Colorado study reported that residents living within 1000 feet of drilling sites were subjected to noise levels (65-69 decibels) that are associated with sleep disturbance, fatigue, cognition and mood changes, and stress.<sup>38</sup> Those living near wells may also live in fear of explosions, which have happened in several parts of Colorado.<sup>39</sup> Recent

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<sup>35</sup> Colorado Oil and Gas Conservation Commission, March 2, Staff Report, Colorado Department of Natural Resources (2015), *available at* <http://cogcc.state.co.us/>.

<sup>36</sup> Thompson et al., *supra* note 9, at 3.

<sup>37</sup> Jake Hays & Adam Law, *supra* note 22; McKenzie et al., *supra* note 26, at 415.

<sup>38</sup> Jill Kriesky, *Socioeconomic Change and Human Stress Associated with Shale Gas Extraction*, Physicians for Social Responsibility (2012), *available at* <http://www.psr.org/environment-and-health/environmental-health-policy-institute/responses/socioeconomic-change-and-human-stress.html>.

<sup>39</sup> *See, e.g.*, Jesse Paul & Mark Jaffe, *Fracking Blast Kills One Halliburton Worker, Injures 2 in Weld County*, The Denver Post (Nov. 13, 2014),

studies have also indicated that hydraulic fracturing can induce earthquakes, which can be dangerous and disruptive for residents.<sup>40</sup>

**B. Oil and Gas Development in Colorado is Degrading the Environment and Harming Wildlife Resources.**

In addition to the aforementioned impacts of oil and gas development and hydraulic fracturing on public health and welfare, there are numerous adverse impacts on the environment and wildlife, the protection of which is required by the Commission's enabling statutes. *See, e.g.*, C.R.S. § 34-60-102(1)(b).

Of particular concern is the impact of oil and gas development on climate change. Not only does the combustion and flaring of oil and gas release carbon dioxide into the atmosphere, which is the primary driver of climate change and ocean acidification, but the extraction of natural gas results in significant methane emissions. Methane is a potent greenhouse gas with a global warming potential more than 100 times greater than carbon dioxide over a 20-year time frame and at least 30 times greater than carbon dioxide over a 100-year time frame.<sup>41</sup> Fracked wells in particular release large amounts of methane, approximately 40-60 times

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[http://www.denverpost.com/business/ci\\_26930029/one-dead-following-fracking-accident-weld-county](http://www.denverpost.com/business/ci_26930029/one-dead-following-fracking-accident-weld-county).

<sup>40</sup> New York State Department of Health, *supra* note 6, at 6.

<sup>41</sup> Robert Howarth et al., *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations*, 106(4) *Climatic Change* 679, 685 (2011); Pétron et al., *supra* note 24, at 3.

more than conventional gas wells.<sup>42</sup> Natural gas development is the largest source of methane in Colorado.<sup>43</sup> Methane emissions from gas wells offset any potential benefits that natural gas has over coal. According to one study, natural gas producers in Colorado lose about 4% of their gas to the atmosphere.<sup>44</sup> Since methane is such a powerful greenhouse gas, this leakage rate means that even if there were no pipeline leakage, natural gas is *worse* than coal from a global warming perspective.<sup>45</sup>

This is significant since climate change is already impacting Colorado. As detailed in Plaintiffs' petition for rulemaking, climate change is contributing to warmer temperatures, more frequent heat waves, an increase in frequency and intensity of wildfires, a decrease in snowpack, disruptions to Colorado's water supplies, droughts, and floods.<sup>46</sup> These climatic changes are adversely impacting

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<sup>42</sup> Jinsheng Wang et al., *Reducing the Greenhouse Gas Footprint of Shale*, 39(12) Energy Policy 8196 (2011); Mark Fischetti, *Fracking Would Emit Large Quantities of Greenhouse Gases*, Scientific American (Jan. 20, 2012), available at <http://www.scientificamerican.com/article.cfm?id=fracking-would-emit-methane>.

<sup>43</sup> Pétron et al., *supra* note 24, at 3.

<sup>44</sup> Jeff Tollefson, *Air Sampling Reveals High Emissions from Gas Field*, 482 Nature 139, 139-40 (2012).

<sup>45</sup> Catherine Thomasson, *Natural Gas: The Newest Danger for Global Warming*, Physicians for Social Responsibility (2012), available at <http://www.psr.org/environment-and-health/environmental-health-policy-institute/responses/natural-gas-the-newest-danger-global-warming.html>; *see also* Robert W. Howarth et al., *supra* note 41, at 687 (concluding that "the GHG footprint of shale gas approaches or exceeds coal even when used to generate electricity").

<sup>46</sup> Petition of Xiuhtezcatl Martinez et al., at 34-40 (2013).

Colorado's fish and wildlife, forests, disrupting agricultural practices, and have numerous harmful health impacts.<sup>47</sup> Because oil and gas development in Colorado is contributing to climate change and the ensuing harms caused by climate change, the Commission should fully consider these impacts.

Oil and gas development, and hydraulic fracturing in particular, also requires significant water resources, as much as five million gallons of water per well.<sup>48</sup> This demand for water is noteworthy since Colorado is a semi-arid state with limited water resources. One report by the State of Colorado projected that hydraulic fracturing water demands for 2015 will be 18,700 acre-feet (over six billion gallons).<sup>49</sup> That is approximately enough water to meet the yearly water needs for the City of Fort Collins.<sup>50</sup> Since fracking wastewater is contaminated with numerous chemicals and pollutants it cannot be returned to streams, meaning water used for hydraulic fracturing is 100% consumptive.

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<sup>47</sup> *Id.*

<sup>48</sup> Madelon L. Finkel & Adam Law, *The Rush to Drill for Natural Gas: A Public Health Cautionary Tale*, 101(5) *Am. J. Pub. Health* 784 (2011).

<sup>49</sup> Colorado Division of Water Resources, Colorado Water Conservation Board, and Colorado Oil and Gas Conservation Commission, *Water Sources and Demand for Hydraulic Fracturing of Oil and Gas Wells in Colorado from 2010 through 2015*, available at [http://cogcc.state.co.us/Library/Oil\\_and\\_Gas\\_Water\\_Sources\\_Fact\\_Sheet.pdf](http://cogcc.state.co.us/Library/Oil_and_Gas_Water_Sources_Fact_Sheet.pdf) (last visited Mar. 13, 2015).

<sup>50</sup> Western Resource Advocates, *Fracking Our Future: Measuring Water and Community Impacts*, <http://www.westernresourceadvocates.org/frackwater/> (last visited Mar. 13, 2015).

There are also adverse impacts to wildlife from various stages of oil and gas development. Fracking wastewater, often stored in open pits, picks up mineral salts that can attract wildlife like deer, grouse, and turkeys that drink it.<sup>51</sup> Ducks and other birds will land in pits containing wastewater from hydraulic fracturing.<sup>52</sup> Often times, wildlife exposed to the wastewater die, usually from respiratory failure.<sup>53</sup> The construction of roads to well sites causes disturbances to wildlife habitat and habitat fragmentation that can cause significant deterioration in population numbers over time.<sup>54</sup> Roads and gravel platforms at well sites increase runoff, which often carries silt and toxic chemicals and pollutes the water wildlife relies on and can cause a decline in fish populations.<sup>55</sup> All of the pollutants and chemicals that adversely impact human health can also have similar harmful impacts for wildlife species.

## CONCLUSION

Amici have interests in protecting the public health, safety, and welfare of all Coloradans, including their posterity, as well as protecting the environment and wildlife. As the only state agency charged with managing oil and gas

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<sup>51</sup> Jeremy Heiman, *Drilling, Wildlife Often Don't Mix*, The Valley Journal (Dec. 3, 2008), available at <http://rouse-tc.org/wp-content/uploads/2013/03/Heiman-2008-Drilling-Effects-on-Wildlife-in-Colorado.pdf>.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> *Id.*

development, the Colorado Oil and Gas Conservation Commission is not fulfilling its statutory mandate to protect public health, the environment, and wildlife resources. This Court should clarify the legal authority and duty of the Commission to protect Coloradans, including the Youth Petitioners, from harm to their health and welfare, the environment and wildlife, and reverse the Commission's order denying the Plaintiffs' petition for rulemaking. Amici respectfully request that the Court remand the Petition to the Commission with instructions to initiate a rulemaking process as well as grant other relief requested by Plaintiffs' in their Complaint.

April 7, 2015

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## CERTIFICATE OF SERVICE

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