

Case No. 17-1800

**IN THE UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT**

WAYNE LAND AND MINERAL GROUP LLC
Appellant

v.

DELAWARE RIVER BASIN COMMISSION
Appellee, and

DELAWARE RIVERKEEPER NETWORK AND
MAYA K. VAN ROSUM, THE DELAWARE RIVERKEEPER
Intervenor-Appellees

*Appeal from the March 23, 2017 Order
of the United States District Court for the Middle District of Pennsylvania*

AMICUS CURIAE BRIEF BY DAMASCUS CITIZENS FOR
SUSTAINABILITY, INC. IN SUPPORT OF DELAWARE RIVER BASIN
COMMISSION

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RULE 26.1 DISCLOSURE STATEMENT

Damascus Citizens for Sustainability, Inc. (“DCS”) is a non-profit 501(c)(3) membership organization focused on protection of public health and the environment from pollution caused by oil and gas development using hydraulic fracturing, horizontal drilling and other unconventional production and development techniques (collectively referred to as “fracking”). DCS has no parent corporation and has not issued any stock.

Respectfully submitted,

August 16, 2017

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INTRODUCTION

Damascus Citizens for Sustainability, Inc. (DCS) is filing this amicus curiae brief in support of the Delaware River Basin Commission (DRBC or “Commission”) and its jurisdiction under the Delaware River Basin Compact (Compact) to regulate oil and gas development projects in the Delaware River Basin (Basin). The three parties in this case have each authorized DCS to inform the Court that they have no objection to DCS filing this amicus brief.

DCS is a non-profit 501(c)(3) grass roots citizens group focused on protection of public health and the environment from pollution caused by oil and

gas development using hydraulic fracturing and horizontal drilling, including production and related activities and infrastructure (hereafter “fracking.”). Many of DCS’s nearly 5000 members live, work, have interests in, and recreate in the Delaware River Basin. Millions of others, such as residents of New York City and Philadelphia, rely on water from the Basin for drinking and other potable water uses. DCS and its members rely on the Compact and its implementation by the Delaware River Basin Commission to review and regulate any and all projects that may have an adverse effect on the waters of the Basin and, by extension, public health and the environment of the Basin.

Since its inception in 2008 DCS has seen a growing number of cases where individuals and communities outside the Basin have suffered serious health impacts from pollution caused by fracking near their homes and communities or upstream from them. DCS and its members are very concerned that similar types of fracking impacts would occur in the Basin if fracking activities are determined to be beyond the control of DRBC.

The purpose of this amicus brief is to better inform this Court about the adverse human health impacts that have been caused by oil and gas development using fracking in areas outside the Basin that are not subject to the Commission’s project review authority. As discussed in the Arrindell Declaration (attached as Exhibit 1 to this brief), in many other parts of Pennsylvania that are outside of the

Basin and in other parts of the country, there have been very significant adverse health impacts caused by fracking. To the best of our knowledge, no one who lives, works, or recreates within the Basin has experienced such health impacts as yet for one and perhaps only one reason. That reason is the moratorium on fracking projects and the protections built into the Compact and the regulatory controls established and enforced by DRBC.

ARGUMENT

There are several recently published reports on adverse health effects related to fracking. Information about many of the thousands of health impact cases is reported in one or more of the reports attached as exhibits to this brief: These reports are:

1) *Compendium of Scientific, Medical, and Media Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction)*, Concerned Health Professionals of New York and Physicians for Social Responsibility, (4th Edition November 17, 2016)(“Compendium”) Exhibit 2;

2) *Hydraulic Fracturing For Oil and Gas: Impacts From the Hydraulic Fracturing Water Cycle On Drinking Water Resources In the Unites States* (EPA, December 12, 2016)(“EPA HF Study”) Exhibit 3;

3) *A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development* (New York Department of Health, December 17, 2014)(“NYDOH Report”) Exhibit 4;

4) Fracking Impacts on a More Local Level: *The List of the Harmed, Pennsylvania Determination Letters* and the *Hallowich Family Saga* Exhibit 5a,b,c.

5) *Letter from League of Women Voters to DRBC Commissioners* Exhibit 6:

The Compendium

The Compendium (Exhibit 2) collects over 900 scientific studies, federal and state reports, and media reports related to adverse health impacts from fracking.

Dr. Larysa Dyrszka, co-founder of Concerned Health Professionals of New York and a member of DCS, summarizes the lessons from the Compendium this way,

“Our extensive literature compilation and analysis demonstrates without question that the harms are far greater than any benefits, and that the list of such literature is increasing exponentially.” She summarizes the current situation with fracking as follows:

“At issue is not just what we know. It is what we still do not know, such as the identification and effects of all the endocrine disruptors in industry components that leach into groundwater and pollute the air, the amount of radioactivity that can impact the waters and as a consequence people who drink it, and the toll such impacts will have on all people, but importantly, the most vulnerable. Some of the chemicals used in [fracking] cause fetal demise and congenital defects; some cause exacerbations of asthma and neurological problems; others have effects long-term and cause cancer. That toll will be paid in health care expenditures, lost school and work, and even deaths. Regulations, even with the best intentions, have not worked to protect health. Fracking and the proliferation of the infrastructure

that supports it is an inherently dangerous, highly industrialized process that no regulations have been able to make safe.”

The Compendium is available at <http://concernedhealthny.org/compendium/>.

Special attention to the “Emerging Trends” section of the Compendium (pages 12 to 21) is especially relevant to the issues involved in this case. Each of these topics is addressed in detail in the Compendium.

The Compendium is only available through electronic media. In order to produce a paper copy of materials from the Compendium, the reader can select and download materials of interest. The latest version of the Compendium is included on a flash drive containing all of the exhibits filed with this brief. We also have filed a motion with the Court for leave to file these exhibits on a flash drive.

The NYDOH Report

The NYDOH Report (Exhibit 4) was researched and prepared by the New York State Department of Health after a two year review including consultation with public health officials and experts in several other states with shale gas development. The final report summarized the study process as follows

(Executive Summary, p.1):

“In conducting this public health review DOH: (i) reviewed and evaluated scientific literature to determine whether the current scientific research is sufficient to inform questions regarding public health impacts of HVHF; (ii) sought input from three outside public health expert consultants; (iii) engaged in field visits and discussions with health and environmental authorities in states with HVHF activity; and (iv) communicated with multiple local, state, federal, international, academic, environmental, and

public health stakeholders. The evaluation considered the available information on potential pathways that connect HVHF activities and environmental impacts to human exposure and the risk for adverse public health impacts.

The final Report was presented to Governor Cuomo in December, 2014. The conclusion of the Report was:

“As with most complex human activities in modern societies, absolute scientific certainty regarding the relative contributions of positive and negative impacts of HVHF [high volume hydraulic fracturing] on public health is unlikely to ever be attained. In this instance, however, the overall weight of the evidence from the cumulative body of information contained in this Public Health Review demonstrates that there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF, the likelihood of the occurrence of adverse health outcomes, and the effectiveness of some of the mitigation measures in reducing or preventing environmental impacts which could adversely affect public health. Until the science provides sufficient information to determine the level of risk to public health from HVHF to all New Yorkers and whether the risks can be adequately managed, DOH recommends that HVHF should not proceed in NYS.” (emphasis added).

Shortly thereafter the Governor decided to ban high volume fracking across all of the state. The NYDOH Report is available at

https://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf.

The EPA HF Study (“Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States”)

Adverse public health impacts from contamination of the environment by fracking activities are also documented in the EPA HF Study (Exhibit 3) released to

the public in December 2016. This Study looked at the impacts of fracking on drinking water resources. After six years of work by EPA and its Science Advisory Panels and Board, the agency released its 666 page report, a 50 page executive summary and 572 pages of exhibits. As summarized in the executive summary, EPA reached the following conclusions (ES pp. 1-2):

“The hydraulic fracturing water cycle describes the use of water in hydraulic fracturing, from water withdrawals to make hydraulic fracturing fluids, through the mixing and injection of hydraulic fracturing fluids in oil and gas production wells, to the collection and disposal or reuse of produced water. These activities can impact drinking water resources under some circumstances. Impacts can range in frequency and severity, depending on the combination of hydraulic fracturing water cycle activities and local- or regional-scale factors. The following combinations of activities and factors are more likely than others to result in more frequent or more severe impacts:

- Water withdrawals for hydraulic fracturing in times or areas of low water availability particularly in areas with limited or declining groundwater resources;
- Spills during the management of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources;
- Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity allowing gases or liquids to move to groundwater resources;
- Injection of hydraulic fracturing fluids directly into groundwater resources;
- Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources; and
- Disposal or storage of hydraulic fracturing wastewater in unlined pits, resulting in contamination of groundwater resources.

The above conclusions are based on cases of identified impacts and other data, information, and analyses presented in this report. Cases of impacts were identified for all stages of the hydraulic fracturing water cycle. Identified impacts generally occurred near hydraulically fractured oil and gas production wells and ranged in severity, from temporary changes in water quality to contamination that made private drinking water wells unusable.”

The Executive Summary of the EPA HF Study Exhibit 3 is available on the flash drive filed with this brief or at

[https://www.epa.gov/sites/production/files/2016-](https://www.epa.gov/sites/production/files/2016-12/documents/hfdwa_executive_summary.pdf)

[12/documents/hfdwa_executive_summary.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/hfdwa_executive_summary.pdf) . The full EPA HF Study report

Exhibit 3b also is available on the flash drive filed with this brief or at

http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=530159

Fracking Impacts on a More Local Level

The cumulative impacts of a multiplicity of wells, well pads, access roads, processing facilities, waste pits, condensate tanks, solid and liquid waste handling including spills and illegal dumping, compressors, truck traffic hauling chemicals, water, wastes and building materials, pipelines, social impacts, etc. are a function of the processes. The totality is greater than the individual segmented parts when looking at the environmental and health impacts. To get an understanding of the full spectrum of fracking impacts on individuals and families across the nation we

have included on the flash drive of appendices *The List of the Harmed*, (Exhibit 7), <https://pennsylvaniaallianceforcleanwaterandair.wordpress.com/the-list/> provides a short summary of fracking impacts on nearly 22,000 individuals (or families/communities) nationwide. On a state level in Pennsylvania, the Department of Environmental Protection has sent between 2008 and 2012 (with more since then) what are known as Determination Letters to over 160 homes and businesses to inform them that fracking has impacted their water supply source. An example of one of these letters is included as Exhibit 5(a) to this brief. Other examples can be found in Exhibit 8 and at

<http://www.damascuscitizensforsustainability.org/pa-dep-determination-letters>

On an individual family level, we have attached in Exhibit 5(c) information about the impacts of fracking on the Hallowich family in Hickory, PA (Washington County). Included as Exhibit 5(c) is an article with maps of what surrounded their home and an amicus brief filed in their case. The severity of impacts on the Hallowich family is typical of the inundation of industrial activities near homes that result in devastating impacts of fracking on families across the nation.

Also we would like the Court to see a pictorial review of some of the multi-million gallon liquid waste holding impoundments in western PA with some of the violations and fines they have received after pollution events in Exhibit 9 and at <http://www.marcellus-shale.us/centralized-impoundments.htm>. Such impoundments

are not in the Basin because of the Commission's authority to protect the Basin. Further, in Exhibit 10 are comments on low dose chemical impacts on health from The Endocrine Disruption Exchange and a few examples in Exhibit 5b of what happens when there are flood events where there is drilling including resulting carriage and spread of chemicals and hydrocarbons downstream with floodwaters. Flooding is a common event on the Delaware River and its tributaries.

Regarding earthquakes (point number 6 in the Emerging Trends section of the Compendium), we would like to point out the increase from an average of fewer than two M3+ (Richter scale magnitude 3 or higher) earthquakes per year in Oklahoma in 2009 when fracking was just getting started and over 900 in 2015 and more since then. The induced seismicity is thought to be linked to fracking and wastewater injection well disposal which began in 2009 following a significant increase in oil and gas fracking in the earthquake impacted area. In addition to the sharp increase in the number of quakes, researchers are seeing an increase in the magnitude of earthquakes near fracked wells, including a magnitude 5.8 quake that is the largest quake ever recorded in Oklahoma. For a more graphic appreciation of this seismic activity, we invite the Court to view the animation found at <https://earthquake.usgs.gov/earthquakes/byregion/oklahoma/OKeqanimation.php> which is a U.S. Geologic Survey ("USGS") prepared animation of all M3+

earthquakes in Oklahoma from June 9, 2008 to currently at the end of July, 2017 - The animation updates to current data continuously and is only available online.

Studies by academic scientists and those at the USGS have verified that pressure from high-volume wastewater injections, which can include actual fracking, has disturbed faults in Oklahoma, Texas, Kansas, Arkansas and other states creating or ‘inducing earthquakes. In the Frohlich paper (Frohlich, A *Historical Review of Induced Earthquakes in Texas*, Seismological Research Letters, vol. 87, no.4, July/August 2016) earthquakes in Texas are 13% natural “tectonic” and the balance are ‘induced”(see figure 5 on page 5 of Exhibit 12) (<https://www.smu.edu/-/media/Site/News/NewsSources/EarthquakeStudy/earthquake-study-17may2016.ashx?la=en>).

In the DRB, seismic events have occurred, originating both outside of and within the Basin as itemized with potential impacts by geologist and hydrogeologist, Paul Rubin (see Exhibit 11). With the density of population and infrastructure in the region, and absence of preparation for seismic events, earthquakes would be catastrophic.

In the “what we don’t know” category (see Dr. Dyrszka’s statement on p. 8 above) is another serious public health problem related to fracking - bacteria - including sulfide producing bacteria from deep rock formations (where the gas and

oil are) that are brought up to the surface and begin to release the poisonous gas, hydrogen sulfide (H₂S) from waste water impoundments or where ever the waste liquid is collected. Deep rock bacteria eat more complicated sulfur compounds and produce sulfide, including hydrogen sulfide which in small quantities causes nausea, headaches, tremors, respiratory illness, brain damage, immune system illnesses. cardiovascular impacts. If enough is breathed, death in minutes results. One of the DRB ‘test’ wells (Woodland Partners) released H₂S from the cuttings holding pit and caused a neighbor to be ill. There are several families of bacteria that produce sulfides. See Exhibit 13, a new paper about a recently discovered very strong bacterial sulfide producer. Also, there are other deep rock bacteria being brought to the surface that have unknown impacts to living organisms.

The total impacts from fracking nationwide have not extended to the Delaware River Basin because the Commission has supported the moratorium on fracking embodied in the Executive Director’s determinations in 2009 and 2010. This litigation challenges the Commission’s authority under the Compact to protect the Basin, including the tens of millions of water users who depend on these water resources every day.

We have laid out in this brief and its exhibits some of the devastating impacts that would follow in the Basin if this Court determines that the Commission does not have the authority to regulate – including the authority to ban -- fracking in the

Basin. Finally, we draw the Court's attention to a recent letter (copy attached as Exhibit 6) sent by the League of Women Voters to each of the Commissioners imploring them to exercise the authority given to them in the Compact to ban fracking in order to preserve the Basin's water resources for current and future generations.

CONCLUSION

For the forgoing reasons this Court should affirm the motion to dismiss granted by the district court.

Respectfully submitted,

August 16, 2017

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CERTIFICATE OF COMPLIANCE

1. This Brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because it contains 2747 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(f).
2. This Brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5 and the type-style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in proportionally spaced type face using Microsoft Word in 14 Point Times New Roman.

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CERTIFICATE OF BAR MEMBERSHIP

Pursuant to Third Circuit Local Appellate Rule 28(3)(d), Amicus Damascus Citizens for Sustainability hereby certifies that the undersigned counsel is a member of the Bar of this Court.

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L.A.R, 31.1 CERTIFICATION

I, John J. Zimmerman, hereby certify that the text of the electronic brief is identical to the text in the paper copies. I also certify that a virus detection program has been run on the brief and exhibits using Webroot Secure Anywhere and no virus was detected.

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I, the undersigned, certify that a true and direct copy of the foregoing Amicus

Brief was served electronically on this date on the following individuals:

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