



Chemical threats to our families' health

What is fracking?

Hydraulic fracturing (fracking) is a process used to release oil and gas, and involves drilling underground into rocks, then pumping massive amounts of chemical-laced water into cracks to break them and force them open. According to the EPA, horizontal fracking in the Marcellus Shale uses 3 to 4 million gallons of water; while conventional drilling requires the use of approximately 1 million gallons of water. The chemicals used in fracking, drilling, transport, and waste disposal can pollute the surrounding air and water.

Effects on maternal and children's health

The chemicals and substances that are used in or are byproducts of tight oil and shale gas development have been linked to serious health problems, including issues of particular concern to pregnant women, women who may become pregnant, and children.

For an online version of this flyer, with references, additional resources, and information about proposed legislation, visit www.ceh.org/fracking-legislators.

Due to loopholes in state and federal laws, fracking waste is not classified as hazardous even though it can be harmful to human health and the environment.

Pollutant	Where it can be found	Respiratory, reproductive, and carcinogenic (breathing, pregnancy, and cancer) health effects
Benzene & toluene	Benzene and toluene are the "B" and "T" in the quartet of chemicals known as BTEX. These chemicals are found in millions of gallons of fracking fluids every year.	<ul style="list-style-type: none"> Pregnant women exposed to benzene have a higher likelihood of babies with low birth weight* and birth defects such as spina bifida. Benzene and toluene exposure puts pregnant women at greater risk for miscarriage. Exposure to benzene has been linked with leukemia (a type of cancer), which is more common among children living in areas with greater amounts of benzene in the air or water.
Arsenic	The heavy metal arsenic can come up in wastewater that comes out of the well after drilling.	<ul style="list-style-type: none"> Arsenic causes bladder, lung, skin, kidney, nose, liver, and prostate cancer. Health problems associated with arsenic exposure include gastrointestinal and nervous system problems, difficulty with problem solving, memory issues, and low birth weight babies*.
Formaldehyde	Has been found in the air around fracking sites.	<ul style="list-style-type: none"> Partners of men exposed to formaldehyde take longer to become pregnant and are more likely to have miscarriages. Formaldehyde causes cancer.
Ground-level ozone	When chemicals from fracking operations are released into the air they can combine with nitrogen oxides and increase ground-level ozone.	<ul style="list-style-type: none"> Mothers exposed to ozone during pregnancy are more likely to have babies with low birth weight.* Breathing ozone can damage the lungs and lead to difficulty breathing and asthma in babies, children, and adults.
Hydrogen sulfide	Has been found in the air at fracking sites.	<ul style="list-style-type: none"> Hydrogen sulfide can cause difficulty breathing and make the nose and throat sore. It causes serious problems for people with asthma, especially children. Breathing high levels of hydrogen sulfide, even briefly, can be life threatening.
Methane	Can leak out of wells and pollute the air and water during fracking.	<ul style="list-style-type: none"> When trapped in small spaces, like a home or garage, methane can cause difficulty breathing, suffocation, and can be explosive.
Silica	Used in fracking to prop open cracks in the shale rock and allow the gas to flow.	<ul style="list-style-type: none"> Breathing in silica sand can cause silicosis, a disease that reduces the lungs' ability to take in air and can lead to health problems and early death.
Methylene chloride	Found in high levels in air samples near fracking wells.	<ul style="list-style-type: none"> Methylene chloride causes lung, liver, and pancreatic cancer.
Radium	Fracking can bring radioactive radium above ground.	<ul style="list-style-type: none"> Exposure to radium increases the chance of getting several kinds of cancer.
Radon	Levels of radon near fracked wells can be high.	<ul style="list-style-type: none"> Exposure to radon is the leading cause of lung cancer among non-smokers and is the second leading cause of lung cancer overall.

*Low birth weight puts babies at risk for developing infections, serious health problems, and early death. It also increases risk for learning disabilities and problems with social development.



What can legislators and regulators do?

1 Support legislative moratoriums and bans that delay fracking until thorough studies and a strong regulatory framework ensure it can be done safely and without contaminating air and water resources. In NY, there are bills that would suspend or prohibit hydraulic fracturing that need legislative support, including [A.5424/S.4263A](#) and [A.1685/S.673](#). Legislators can also support local, community proposed ordinances. For models, see [Alfred, NY's moratorium](#) and [Dresden, NY's ban](#) on fracking.

2 Regulate the treatment of fracking fluids and hazardous waste. The NYS Dept. of Environmental Conservation (DEC) allows oil and natural gas production brine (wastewater) from fracking and natural gas storage to be used on roads for de-icing, dust control, and stabilization. Brine can often contain numerous harmful contaminants. [S.3333A](#) would prohibit the use of waste from oil or natural gas extraction activities or storage on highways. [S.5412/A.7497](#) would prohibit acceptance of wastewater from oil or natural gas extraction activities at wastewater treatment facilities and landfills. Due to loopholes in state and federal laws, fracking waste is not classified as hazardous even though it can be harmful. [S.674/A.1046](#) would make hazardous waste from oil and gas drilling subject to the same regulations for hazardous waste generation, transportation, treatment, storage, and disposal that apply to other industries operating in NY.

3 Protect water quality and areas surrounding water. Legislators should support stronger federal and state regulations on well spacing, setback, withdrawal limits, flowback, and other protections that have been proposed or are in place to protect water quality. There are documented incidents of drinking water contamination from shale gas and tight oil operations, as well as from improper storage of fracking chemicals. It is also important to note that as

much as half of the fracturing fluid returns to the surface as wastewater ("flowback"), which typically includes chemicals and radioactive particles. Legislators can also support local zoning and ordinance rules to protect and preserve local public water supplies. For example, [Virgil, NY](#) amended its zoning law in 2010 to protect its groundwater resources to ensure a safe drinking water supply.

4 Establish strict regulatory oversight for fracking infrastructure, which includes the structures and processes needed for oil and natural gas development and support such as roads, bridges, waterways, railways, barges, sewers, electrical grids, pipelines, and power plants. Oil and gas development in NY relies on aging infrastructure, and emissions, leaks, spills, and transportation accidents threaten the health of communities by polluting surrounding air and water. Prior proposals for transporting waste by railway and barge, like the U.S. Coastguard proposal of 2013, have included shipping materials and waste down the Hudson and Delaware Rivers, which is concerning because transport by waterway could pollute NY water supplies from accidents, leaks, and spills of chemicals in drilling and fracking fluids.

5 Protect New York businesses. Fracking threatens industries that depend on natural amenities for growth and sustainability. The food and beverage industries, agriculture, tourism and outdoor recreation, and real estate all rely on uncontaminated resources, space and the natural surrounding environment. According to a poll by the American Sustainable Business Council, 80% of small business owners support requiring disclosure of chemicals used in hydraulic fracturing, and 92% of small businesses support regulations to protect air and water from pollution by toxic chemicals.



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FRACKING & MATERNAL HEALTH:
What New York Legislators & Regulators
Need to Know



FRACKING AND MATERNAL HEALTH

Resources and References

Pending Legislation to Support

- [A.5424A/S.4263A](#)
“Suspends the issuance of permits for drilling wells for natural gas extraction in certain areas.”
- [A.1685/S.673](#)
“Prohibits the use of hydraulic fracturing in the extraction of oil and natural gas; prohibits acceptance, disposal and/or processing of any fluid used in a hydraulic fracturing process.”
- [S3333A](#)
“Prohibits the use of waste from oil or natural gas extraction of storage on any highway.”
- [S.5412/A.7497](#)
“Relates to prohibiting the acceptance of waste water from oil or natural gas extraction activities at wastewater treatment facilities and landfills.”
- [S.674/A.1046](#)
“Relates to the uniform treatment of waste from the exploration, development, extraction, or production of crude oil or natural gas.”

Additional Resources

New York State Department of Environmental Conservation Resources

- New York State Department of Environmental Conservation's information on oil, gas, and solution mining in New York: <http://www.dec.ny.gov/energy/205.html>
- Current list of pending well permits in New York State: http://www.dec.ny.gov/dmndata/Well_Reports/Unit_Spacing_SW_Rpt.html
- Information on well regulations and the well permitting process in NY: <http://www.dec.ny.gov/energy/1522.html>
- Current rules and regulations for oil, gas, and solution mining in New York State: <http://www.dec.ny.gov/energy/1630.html>

Business, Health, Policy, and Science Resources

- American Public Health Association (APHA) advocacy and policy statements on hydraulic fracturing: <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1439>
- American Sustainable Business Council (ASBC) resources on business/economy: http://asbcouncil.org/sites/default/files/library/docs/fracking_business_resources.pdf
- Center for Environmental Health (CEH) resources on fracking and maternal-child health: <http://www.ceh.org/fracking>
- Concerned Health Professionals of New York peer-reviewed studies, reports, and statements/resolutions: <http://concernedhealthny.org/>
- Physicians for Social Responsibility reports, policy statements, fact sheets, and letter to officials: <http://www.psr.org/environment-and-health/hydraulic-fracturing.html>
- Physicians Scientists & Engineers for Healthy Energy (PSE) data sources and scientific papers: <http://psehealthyenergy.org/home>
- Riverkeeper news, reports, and press releases: <http://www.riverkeeper.org/>
- The Endocrine Disruption Exchange (TEDX) chemical data reporting and peer-reviewed studies on chemicals used in natural gas operations: <http://www.endocrinedisruption.com/chemicals.gasresources.php#papers>

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The Center for Environmental Health (CEH) has a seventeen-year track record of protecting children and families from harmful chemicals in our air, water, food, and in dozens of everyday products. CEH also works with major industries and leaders in green business to promote healthier alternatives to toxic products and practices.