

Fracking Report Concludes More Health Studies Are Needed

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by Christine A. Fazio and Ethan I. Strell

Just before Christmas, the New York State Department of Health released its long-awaited report on the public health effects of hydrofracking, resulting in New York State's highly publicized decision to continue to ban the natural gas extraction process known as high volume hydraulic fracturing (HVHF).^[1] This article discusses the Health Department report, its ramifications, and the legal framework in which it was produced.

Legal Framework of Fracking

Although the Health Department Report provided the basis for the state to continue its ban on HVHF, the Health Department is not the state agency charged with regulating (or prohibiting) HVHF, nor is oil and gas extraction new to New York State. As we reported back in 2009, the New York State Department of Environmental Conservation (DEC) has regulated oil and gas drilling (including low-volume hydraulic fracturing) for many years—well before the word fracking even was a part of the vernacular—under the Oil, Gas and Solution Mining Law, pursuant to a 1992 generic environmental impact statement prepared under the State's Environmental Quality Review Act (SEQRA).^[2] In fact, the U.S. natural gas industry actually started with a well in Chautauqua County in 1821. However, as drilling technology evolved in recent years to larger-scale directional drilling with high volume hydraulic fracturing, potentially opening a huge portion of rural New York to industrial gas development, DEC determined in 2008 that further environmental review was needed to permit this new, potentially disruptive technology. DEC's first draft supplemental generic environmental impact statement (EIS) was released in September 2009. After much public comment and an Executive Order from Governor David Paterson requiring further study, DEC revised the EIS and released a Preliminary Revised Draft document in July 2011, and a Revised Draft in September of 2011 (Revised DSGEIS). By that time, fracking had become a divisive political issue, which Governor Andrew Cuomo's administration inherited when he took office in January 2011. In 2012, DEC Commissioner Joe Martens rejected calls for an outside health study and, instead, requested that the Health Department evaluate the public health analysis in the Revised DSGEIS, as well as identify the most qualified outside experts to aid in this state review.^[3] After two years and supposedly over 4,500 hours of work, the Health Department released its report on Dec. 17, 2014. That same day, DEC Commissioner Martens announced that it would wrap up the environmental review process shortly, and issue a SEQRA findings statement prohibiting HVHF at this time."^[4]

Public Health Report

While many press reports and commentaries suggested that the Health Department found HVHF to be unsafe,^[5] that is not actually the case; rather, the report concludes that sufficient scientific study has not yet been completed in order to understand the risks or to determine whether fracking can be done safely. The Health Department concluded that too much is unknown about the risks of HVHF because several studies on it have yet to be completed and no long-term longitudinal health studies of persons living near HVHF drill sites have been conducted.

Accordingly, if studies are completed in the future that demonstrate that HVHF can be done safely with effective regulation, New York State could then decide to revise its SEQRA findings and proceed with enacting rules for a permit program for HVHF. However, given (1) the Health Department's desire that long-term longitudinal studies be completed before any decision to authorize HVHF is made; (2) the ability for individual municipalities to ban HVHF within their borders pursuant to a New York State Court of Appeals decision from last summer,^[6] thus substantially limiting areas of the state where fracking would even be possible; and (3) the passionate and divided opinion about fracking in the state,^[7] New Yorkers should not expect any change in the current ban on HVHF in the foreseeable future.

Notwithstanding the 4,500 hours it spent preparing the report,^[8] the Health Department did not actually conduct its own health study of HVHF, nor did it conduct a comprehensive review of all published literature. Rather, the Health Department presents a compilation of the emerging scientific literature on HVHF and scientific studies that are currently in progress but have not been completed.^[9] In the report, the Health Department critiqued completed studies (generally finding flaws with these studies), addressed studies that have not been completed, and summarized its consultation with three outside public health expert consultants and discussions with health and environmental authorities in states with HVHF activity.^[10] The report concluded that "[c]omprehensive, long-term studies, and in particular longitudinal studies, that could contribute to the understanding of [the relationships between HVHF environmental impacts and public health] are either not yet completed or have yet to be initiated."^[11]

With regard to the potential for adverse health impacts to communities living near HVHF drill sites, the report examined several anecdotal studies of adverse health symptoms claimed by individuals living near drill sites. However, the Health Department was critical of these studies and did not find that they could be used to support a "cause and effect" of health-related issues to communities due to their living near HVHF drill sites.

As noted by the Health Department, a number of the non-peer reviewed reports of participants' self-reporting health symptoms (skin rash, nausea, cough, nosebleeds) when living near gas drilling facilities could not support the conclusion that HVHF caused symptoms since samples were self-selected, the symptoms were "common in the general population," and there was no systematic assessment of baseline health status or comparison with non-HVHF population or a consideration that other confounders or exposures contributed to the symptoms.^[12]

The Health Department also critiqued health studies that resulted in conflicting conclusions and which, in the department's view, also could not be used to determine that the observed adverse health effects were due to HVHF activity. For instance, two studies on birth outcomes with proximity to HVHF wells had different outcomes: one reported associations with low birth rate and APGAR^[13] score but no congenital defects while another reported some congenital defects but not lower birth weight.^[14] The Health Department noted that neither study could exclude the possibility that another factor unrelated to HVHF contributed to the observed pattern of birth outcomes.

While the report was critical of studies that concluded adverse health effects due to populations living near HVHF drill sites, the report was equally critical of studies that found no health risks. For instance, the Health Department stated that a study that found no increase in childhood cancers after HVHF commenced in Pennsylvania lacked adequate lag time to reach the study's conclusions and had other flaws.^[15]

While the report generally concluded that the existing studies did not provide adequate information to be used to understand the risks of living near HVHF wells, the Health Department did recognize that many studies are currently ongoing and, once concluded, may provide a better basis to understanding the health risks of HVHF on nearby communities.

The report referred to the following studies that are now ongoing, including: (a) the Marcellus Shale Initiative Study to evaluate whether asthma and pregnancy are affected by Marcellus Shale development; (b) the U.S. Environmental Protection Agency's study on HVHF and potential impact to drinking water; (c) the study by Pennsylvania Department of Environmental Protection (PA DEP) of radioactivity levels in produced and flowback waters, wastewater recycling, treatment sludges, and drill cuttings; (d) PA DEP's community air monitoring of fine and coarse particles near transfer facility handling HVHF silica sand; (e) health impact study by University of Pennsylvania; and (f) a sustainability study by

the University of Colorado at Boulder.^[16] Overall, the Health Department stated that “[p]eer-reviewed epidemiologic studies were not found that employ robust study designs addressing possible associations between HVHF activities and adverse health outcomes while providing adequate control for confounding and bias.”^[17]

The report also addressed potential health issues related to environmental impacts to communities where HVHF activities would occur. While some of the environmental impacts identified in the report may be unique to HVHF, many of the impacts identified are typical impacts related to many construction projects and which are routinely subject to mitigation by permitting authorities. However, the report does not address the potential for mitigation of those environmental impacts. For instance, as noted in the report, a large number of idling trucks transiting to drilling sites can increase the public’s exposures to diesel exhaust. However, diesel emissions currently affect individuals living near highways and other roadways within New York State, and diesel exposure from construction equipment is expected at any construction site.

Trucks and construction equipment should not be seen as unique or surprising in a state like New York where construction activity is ongoing throughout the state and goods are generally transported to all cities and towns by trucks; however, HVHF would bring significant new exposure to rural areas where there currently is none. Mitigation to reduce the public’s exposure of diesel emissions is possible: For instance, as commonly is required in major projects and by local laws, the permittee can be required to limit truck idling to no more than three minutes and to use ultra-low sulfur fuel and install emissions controls on construction equipment.

The most unique environmental impact from HVHF is perhaps the volume of water that is needed for this natural gas extraction process and the volume of water that is then sent to wastewater treatment plants. However, mitigation can include requiring the recycling of water used in the HVHF process and limiting how many HVHF sites can be operating within a given radius at any given time, which can also address cumulative air and water quality impacts.

The report recognized groundwater and drinking water contamination that has occurred due to faulty well construction and spills, and this is indeed a serious health issue. However, the report does not address whether the proposed DEC regulations that would have involved stringent construction and monitoring requirements at drill sites could have mitigated or prevented the potential for gas or chemical leakage into groundwater and surface water resources.

While the public perception is that the report identified many studies that identified adverse air quality impacts on public health from HVHF, a reading of the report actually concludes just the opposite. Most of the studies cited in the report found no evidence of potential air quality impacts on public health. For example, the Texas Department of State Health Services collected blood and urine from 28 people living in one town to determine if persons had higher volatile organic compound (VOC) levels from nearby gas wells and compressors. Based on patterns of VOC values found in the samples, the information did not provide evidence that community-wide exposure to gas wells or compressor stations were occurring, and indicated that other sources could explain elevated VOC levels.^[18] Similarly, the Colorado Department of Public Health and Environment conducted air monitoring in one county close to oil and gas development and found exposures not likely to result in significant cancer or non-cancer effects since levels were much lower than those known to cause effects.^[19]

Another analysis in Texas of over 4.6 million data points collected over 10 years for up to 105 different VOCs per monitor in the Barnett Shale region found no chemical exceeded an applicable short-term health-based comparison value.^[20] However, another study from air samples in Arkansas, Ohio, Pennsylvania and Wyoming found concentrations of eight VOCs exceeded risk-based comparison values. The Health Department, however, found that the investigators in this study did not collect necessary control samples, such as upwind air samples or wind direction data, and noted that the study “may have substantially overstated cancer risks...”^[21] In any event, while the report cites to many studies that did not find air quality health impacts near HVHF sites, the Health Department was nonetheless critical of these studies as they did not address the cumulative air quality impacts of HVHF.

The one area of impact that probably is the most unique to HVHF is the issue as to whether HVHF is increasing seismic activity. Induced earthquakes from injection of liquid wastes underground have been documented; there is less research to date of similar effects from HVHF.^[22] The report mentions seismic risk and the lack of information of that risk in the northeast. It also discusses measures that are being taken in Ohio to better understand and mitigate this risk.^[23] More recently, the press has reported on links between fracking or injection wells and earthquakes in places like Oklahoma, Kansas, Ohio, and Alberta.^[24]

While the Health Department follows the precautionary principle to conclude that HVHF should not proceed until more scientific studies are completed, this report did not conclude HVHF is unsafe or actually does result in adverse health impacts, or that any adverse impacts could not be reduced or mitigated through proper oversight. Overall, the report leaves open the possibility that a new administration could take a different position on HVHF, particularly if many of the studies that are now ongoing provide a better understanding of the health risks from HVHF.

Christine A. Fazio is a partner and co-director in the environmental practice group at Carter Ledyard & Milburn. Ethan I. Strell is counsel at Shamberg Marwell Hollis Andreyck & Laidlaw. Alex Silagi, an associate at Carter Ledyard, assisted in the preparation of this article.

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Endnotes

[1]New York State Dept. of Health, Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development, available at http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf. See also the Dec. 17, 2014, Department of Environmental Conservation Press Release indicating that the State will prohibit HVHF, available at <http://www.dec.ny.gov/press/100055.html>

[2]. See Christine A. Fazio and Ethan I. Strell, "[Proposed 'Unconventional' Natural Gas Drilling in New York](#)," *New York Law Journal*, Oct. 23, 2009.

[3]Press Release, "Commissioner Martens Rejects Call for 'Independent' Health Study of High Volume Hydraulic Fracturing, Announces State Health Commissioner to Assess Health Impacts" (Sept. 20, 2012), available at <http://www.dec.ny.gov/press/85071.html>.

[4]See, fn 1 supra.

[5]See, e.g., Thomas Kaplan, "Citing Health Risks, Cuomo Bans Fracking in New York State" *The New York Times*, Dec. 17, 2014; Nicholas St. Fleur, "The Alarming Research Behind New York's Fracking Ban" *The Atlantic*, Dec. 19, 2014; "New York bans fracking over 'significant health risks'" *BBC News*, Dec. 17, 2014; Alan Neuhauser, "New York, Citing Health Risks, Moves to Ban Fracking," *U.S. News*, Dec. 17, 2014; Lindsay Abrams, "Fracking banned in New York state over health risks," *Salon*, Dec. 17, 2014; Daniel Wiessner & Edward McAllister, "New York bans fracking after health report," *Reuters*, Dec. 17, 2014.

[6]*Wallach v. Town of Dryden*, 23 N.Y.3d 728 (2014).

[7]See, e.g., Press Release, “New York State Voters Approve Cuomo Fracking Ban, Quinnipiac University Poll Finds; Big Yes To Minimum Wage Hike, Big No To Legislative Raise” (Dec. 22, 2014), available at <http://www.quinnipiac.edu/news-and-events/quinnipiac-university-poll/new-york-state/release-detail?ReleaseID=2121>.

[8]Report at 4.

[9]Report at 17.

[10]Report at 1.

[11]Report at 11.

[12]Report at 22 to 25. The Health Department further noted that “non-peer-reviewed sources are from informal or anecdotal health evaluations that have significant limitations such as self-selected symptoms reports, non-specific symptoms, lack of exposure data, lack of baseline health information, lack of unexposed comparison groups, and lack of controls for bias and confounding...[and] cannot be used to draw conclusions about associations between reported health symptoms or complaints and any specific potential environmental exposure source such as HVHF shale-gas development.” Report at 26.

[13]A health indicator evaluation given shortly after birth (appearance, pulse, grimace, activity, respiration).

[14]Report at 19 to 21.

[15]Report at 25.

[16]Report at 8 to 11.

[17]Report at 18.

[18]Report at 27 to 28.

[19]Report at 28-29.

[20]Report at 30.

[21]Report at 31.

[22]See, e.g., United States Geological Survey, Induced Earthquakes, available at <http://earthquake.usgs.gov/research/induced>.

[23]Report at 39-40. Note that it appears that a portion of the “Induced Earthquakes” section is missing from the published version of the report.

[24]See Robert J. Skoumal, et al., “Earthquakes Induced by Hydraulic Fracturing in Poland Township, Ohio,” Bulletin of the Seismological Association of America 105:1, February 2015; Frank Morris, “With Quakes Spiking, Oil Industry Is Under the Microscope In Oklahoma,” National Public Radio, All Things Considered, Feb. 16, 2015; Lori Montgomery, “Oklahoma Worries Over Swarm of Earthquakes and Connection to Oil Industry,” The Washington Post, Jan. 28, 2015; Alberta Energy Regulator, “Observed Seismicity and Oil and Gas Operations: Operators’ Responsibilities,” AER Bulletin 2015-03, Feb. 3, 2015.