

Testimony of Dusty Horwitt, JD

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**Oversight Hearing on The Revised Environmental Impact Statement on Hydraulic Fracturing
and New York City's Upstate Drinking Water Supply Infrastructure**

**Before the
New York City Council Committee on Environmental Protection
Thursday, September 22, 2011 at 2:00 p.m.**

Chairman Gennaro, distinguished members of the committee:

Thank you for the opportunity to testify today on the Revised Environmental Impact Statement on Hydraulic Fracturing and New York City's Upstate Drinking Water Supply Infrastructure. My name is Dusty Horwitt, and I am Senior Counsel at Environmental Working Group, a nonprofit research and advocacy organization based in Washington, D.C., with offices in Ames, Iowa and Oakland, California. This is my fifth appearance before the council on this issue.

Gas drilling poses great health risks – and financial risks – to New York City and much of the rest of New York State. We have reviewed the revised plan of the New York State Department of Environmental Conservation. Some of its provisions could make drilling safer. But we are not convinced that if the state allows high-volume hydraulic fracturing and horizontal drilling, it can sufficiently protect New York City's drinking water supply – or the drinking water of rest of the state's population.

The state's environmental conservation department says that the gas drilling industry is unlikely to create many new jobs for New Yorkers. "Given the newness of the industry," the plan says, "it is assumed that, in Year 1, 77% of the total workforce would be transient workers from outside the state." It goes on to speculate that eventually, 90 percent of workers would be local – but not until year 30 of shale gas development.¹

A handful of jobs in the drilling industry could cost New Yorkers billions of dollars they don't have. That's why it is especially important for New York to proceed carefully.

The state plan does not put enough distance between hydraulic fracturing operations and the water supplies for New York City and other cities and towns. There is not yet enough scientific understanding of the implications of fracking to establish what these safe distances should be. Regulators will be forced to wrestle with the natural gas industry, which has recently engaged in a massive violation of the Safe

¹ New York State Department of Environmental Conservation, Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs, Revised Draft, September 7, 2011, at 6-233 and 6-234 [hereinafter NYDEC SGEIS 2011].

Drinking Water Act but has yet to be held accountable. In the face of this industry that has made clear it will push the legal envelope, the state has just 14 inspectors to enforce regulations effectively for thousands of wells.

These 14 overworked inspectors stand between New York City and a multi-billion-dollar disaster.

If upstate drilling causes contamination, the state estimates that building a filtration plant to clean up New York City's drinking water is \$8 billion AT MINIMUM.² The state does not guarantee that the city's water can, in fact, be cleaned at any cost. The state's revised environmental impact statement acknowledges as much, saying "once polluted, it [is] very difficult and very expensive to return these water supplies back to their original condition."³

As we have testified before, natural gas drilling is an inherently risky activity that can pollute water in a variety of ways, from gas migration to spills of fracking chemicals to leaking waste pits. As we noted in a recent report, *Cracks in the Facade*, cited in the *New York Times*, the federal Environmental Protection Agency concluded in 1987 that hydraulic fracturing can contaminate underground sources of drinking water through the underground migration of fracturing chemicals. Because of these inherent risks and the great cost of cleaning up polluted water, natural gas drilling should not be allowed near the public's water supplies.

Setbacks too close for comfort

We believe that the state plan's setbacks are too close to water supplies for New York City and upstate communities. According to a study of 68 water wells in Pennsylvania and New York, published earlier this year by the National Academy of Sciences, water wells within about 3,300 feet of active shale gas wells had concentrations of methane higher than those farther away. Some water wells between 1,500 and 3,000 feet from shale gas wells had elevated concentrations of methane.⁴

In 2004 a natural gas company called Encana improperly cemented and fractured a natural gas well in Garfield County, Colorado. The company's carelessness caused natural gas from deep underground to migrate about 4,000 feet laterally, where it contaminated a stream known as Divide Creek and nearby groundwater with unsafe levels of benzene. Benzene is a known human carcinogen. It is toxic in drinking water at levels greater than five parts per billion.⁵ The Colorado Oil and Gas Conservation Commission fined Encana a then-record \$371,200 for the incident.⁶ This summer – seven years later –

² See *id.*, at 6-47.

³ See *id.*, at 6-45.

⁴ Osborn, Stephen G. et al. Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing, Proceedings of the National Academies of Science, May 17, 2011, vol. 108 no. 20 at 8172-8176. Accessed online September 20, 2011 at <http://www.pnas.org/content/108/20/8172>.

⁵ URS Corporation, Phase I Hydrogeologic Characterization of the Mamm Creek Field Area in Garfield County, Prepared for Board of County Commissioners, Garfield County, Colorado, March 13, 2006, at 5-10. Colorado Oil and Gas Conservation Commission, Order No. 1V-276, September 2004.

⁶ See *id.* Chakrabarty, Gargi. Commission Oks Record Fine for Natural Gas Seep, Rocky Mountain News, August 18, 2004, at 3B.

two groundwater monitoring wells near the creek still showed unsafe levels of benzene.⁷

In 2007, natural gas migrated from a poorly cemented and hydraulically-fractured well in Bainbridge, Ohio, causing a home to explode and contaminating at least 23 water wells.⁸ A state investigation showed that one of the affected water wells was more than 2,300 feet from the gas well; another was more than 2,200 feet from the gas well, and at least four others were more than 1,000 feet away.⁹

In *Cracks in the Facade*, we cited a report from regulators in British Columbia which found that fracturing fluids from shale gas wells traveled up to 2,300 feet horizontally underground, broke into adjacent gas wells and in some cases surged all the way to the surface.¹⁰ Drilling experts have said that hydraulic fractures could connect with nearby abandoned or improperly sealed natural gas or oil wells, sending fracking fluid, natural gas and other contaminants up these wells toward the surface, where they could pollute aquifers.¹¹

The state plan recommends permitting natural gas wells within 1,000 feet of underground aqueducts that carry water to New York City. It suggests that safety can be assured if site-specific analyses are conducted.¹² But the experiences in British Columbia, Colorado, Ohio and elsewhere show that contaminants have traveled up to 4,000 feet. We think 1,000 feet is entirely too close a distance in which to allow drilling at all. As the city's Department of Environmental Protection points out, the water aqueduct linings have cracks that could be infiltrated by fluids or gas.¹³ The city says that a system of brittle geologic features runs underground for up to seven miles horizontally near the city's water aqueducts and watershed. These brittle zones could allow contaminants to seep into the city's water supply from even farther away than 4,000 feet.¹⁴

The state plan proposes to bar drilling in New York City's watershed (and Syracuse's watershed) plus a

⁷ Olsson Associates, West Divide Seep Area Second Quarter Monitoring Status Report for June 2011, Table 1. Accessed online September 21, 2011 at <http://cogcc.state.co.us/>.

⁸ Ohio Department of Natural Resources. Report on the Investigation of the Natural Gas Invasion of Aquifers in Bainbridge Township of Geauga County, Ohio, September 1, 2008, at 6. A later report by Bair et al. found that following the incident of gas migration, 26 water wells had to be disconnected and temporary water tanks installed. See infra note 8.

⁹ Bair, E. Scott et al. Expert Panel Technical Report, Subsurface Gas Invasion Bainbridge Township, Geauga County, Ohio, Submitted to Ohio Department of Natural Resources Division of Mineral Resources Management, June 2010 at 3-113. Accessed online September 21, 2011 at <http://www.ohiodnr.com/mineral/bainbridge/tabid/20484/default.aspx>. Ohio Department of Natural Resources, Order Number 2009-17, April 14, 2009 at Attachment A, Attachment B. Accessed online September 21, 2011 at <http://www.ohiodnr.com/mineral/bainbridge/tabid/20484/default.aspx>.

¹⁰ British Columbia Oil and Gas Commission. Safety Advisory 2010-03, May 20, 2010. Accessed online December 19, 2010 at <http://www.ogc.gov.bc.ca/>.

¹¹ Environmental Working Group. *Cracks in the Façade*, August 4, 2011, at 14, 16, 22.

¹² NYDEC SGEIS, supra note 1, at 7-68, 7-69.

¹³ New York City Department of Environmental Protection, Final Impact Assessment Report, Impact Assessment of Natural Gas Production in the New York City Water Supply Watershed, December 2009, at 43-44. Accessed online September 21, 2001 at http://www.nyc.gov/html/dep/html/news/natural_gas_drilling_dep.shtml [hereinafter NYDEP 2009].

¹⁴ See id., at 15.

4,000-foot buffer zone.¹⁵ But the setback appears to start at the edge of the well pad.¹⁶ The state plan goes on to say that horizontal wells could extend 4,000 feet or more from the vertical opening.¹⁷ In other words, some wells that begin outside the 4,000-foot buffer could extend horizontally underneath the buffer right to the edge of the watershed. Some might penetrate the watershed. If a drilling company's intended footprint is 4,000 feet and then fissures of an additional 2,300 feet open through hydraulic fracturing, as happened in British Columbia, the underground disturbance would reach deep inside the watershed.

New York state has about 75,000 abandoned oil and natural gas wells – half of them in unknown locations. What happens if a fracture intersects with one of those old holes? Contaminants could move toward the surface, polluting ground or surface water as they rose.

Inadequate research

Not enough scientific research has been done to establish truly safe margins for setbacks. In response to a Freedom of Information Law request in 2009, the state environmental conservation department told us that it had not conducted or commissioned studies of hydraulic fracturing chemicals. As far as we know, this situation has not changed. The U.S. Environmental Protection Agency is conducting a study of the impacts of hydraulic fracturing on drinking water supplies. At the very least, New York should wait for the results of the federal study before moving forward with a gas drilling process that could cost taxpayers billions of dollars.

The state could conduct its own scientific testing to determine more precisely whether and how high-volume hydraulic fracturing and horizontal drilling can be conducted safely. The state has proposed some thoughtful regulations, for instance, a requirement to test water near drilling operations before, during and after drilling.¹⁸ Such testing should be done in Pennsylvania, Texas or other areas with intensive shale gas drilling – before drilling proceeds in New York, not after the fact.

Few inspectors

New York must increase the number of inspectors assigned to monitor natural gas operations before allowing drilling to proceed. According to a recent *Reuters* story, the state has only 14 inspectors to oversee 13,000 active natural gas and oil wells.¹⁹ (We contacted several staff at the Department of Environmental Conservation, including the public affairs office but could not confirm these numbers. They do not appear to be in the 1,500-page environmental impact statement.) The department expects about 1,600 applications annually for high-volume horizontal drilling and hydraulic fracturing operations. That's about 100 applications per inspector per year, on top of each inspector's current load of about 1,000 active wells.

¹⁵ NYDEC 2011, *supra* note 1, at ES-20.

¹⁶ NYDEC SGEIS 2011, *supra* note 1, at ES-20, 7-71.

¹⁷ NYDEC SGEIS 2011, *supra* note 1, at 5-22.

¹⁸ NYDEC SGEIS 2011, *supra* note 1, at 7-44 and 7-45.

¹⁹ McAllister, Edward. Insight: NY Water at Risk from Lack of Natgas Inspectors?, *Reuters*, July 29, 2011. Accessed online September 21, 2011 at <http://www.reuters.com/article/2011/07/29/us-newyork-shale-drilling-idUSTRE76S5FA20110729>.

As the 1,500-page environmental impact statement illustrates, natural gas drilling is a highly technical business. To its credit, the department has measures to make the process safer – at least on paper. In reality, how can inspectors with staggering case loads ensure that every well operator abides by all the rules?

The oil and natural gas industry does not have the best reputation for following the law. In January of this year, investigators for the U.S. House of Representatives energy and commerce committee reported that from 2005 to 2009, oil and gas service companies injected more than 32 million gallons of diesel fuel, or fluids containing diesel fuel, in hydraulic fracturing operations in 19 states. Diesel contains benzene and other toxic chemicals. They found that no state or federal regulators had issued the required permits for diesel fuel, an apparent violation of the Safe Drinking Water Act. The act exempts hydraulic fracturing except for fracturing with diesel.²⁰

Industry officials did not deny the charge. They said they could not comply with the law because the Environmental Protection Agency had never issued regulations implementing it.²¹

The law, however, is clear. It says that companies may not inject diesel in hydraulic fracturing operations without a permit. Yet this is exactly what they have done – to the tune of 32 million gallons in 19 different states, including Pennsylvania. This record of willfully ignoring a federal law on a technicality shows that regulators will need to keep a close watch on the industry. We doubt that a handful of overworked state inspectors can scrutinize thousands of new drilling and fracturing operations as closely as they – and the public – would like.

Natural gas drilling is an inherently risky process that could have serious impacts on New York City's drinking water and water supplies in the rest of the state. The state's proposal indicates it is not taking the risks as seriously as it must. The citizens of New York City and the rest of the state should demand more rigorous research and a greater commitment to oversight before shale gas drilling can proceed.

²⁰ Letter from U.S. Reps. Henry A. Waxman, Edward J. Markey, and Diana DeGette to Lisa Jackson, U.S. Environmental Protection Agency Administrator (Jan. 31, 2011).

²¹ Tom Zeller Jr. A Gas Drilling Technique Is Labeled a Violation, *New York Times*, Feb. 1, 2011 at B1.