

January 11, 2012

Attn: dSGEIS Comments
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-6510

Re: EWG's Comments on DEC High Volume Hydraulic Fracturing Proposed Regulations

The Environmental Working Group is pleased to submit the following comments¹ on the New York State Department of Environmental Conservation's proposed regulations for high volume hydraulic fracturing used to extract natural gas from shale formations.² EWG is a non-partisan, non-profit organization dedicated to using the power of information to protect public health and the environment.³ As part of that mission, EWG conducts original research and reports on U.S. oil and natural gas drilling. EWG has given particular attention to a method known as hydraulic fracturing in which drilling companies inject a mix of water, sand, and chemicals (some of them toxic) under high pressure into natural gas and oil wells. The fluid breaks open underground rock formations and allows natural gas and/or oil to flow to the surface. In view of current science, EWG believes lawmakers and regulatory agencies need to learn more about the risks of high volume hydraulic fracturing and how to manage them in a way that does not compromise water resources and public health before allowing the process in New York.

Specifically, EWG's review of the DEC's proposed regulations found two major shortcomings:

- (a) The disclosure section lacks sufficient clarity and scope to ensure that communities understand the hazards hydraulic fracturing chemicals pose to public health and the environment; and**
- (b) The setback requirements fall short of creating a protective buffer between drilling operations and various water sources and floodplains.**

Although the oil and gas industry maintains that hydraulic fracturing is safe,⁴ EWG's research and companies' own statements provide evidence of the potential for hydraulic fracturing to

¹ These comments are filed in addition to separate Environmental Working Group comments on the New York State Department of Environmental Conservation's draft supplemental generic environmental impact statement on horizontal drilling and high volume hydraulic fracturing.

² 33 N.Y. Reg. 11-17 (Sept. 28, 2011); N.Y. State Dep't Env'tl. Conservation, High Volume Hydraulic Fracturing Proposed Regulations, <http://www.dec.ny.gov/regulations/77353.html> (last visited Jan. 10, 2011).

³ See Env'tl. Working Group, <http://www.ewg.org> (last visited Jan. 10, 2011).

⁴ E.g., Michael Bradford, Energy Companies Fight Fracking Controversies with PR, Ads, Bus. Ins., Sept. 25, 2011, <http://www.businessinsurance.com/article/20110925/NEWS07/309259983> ("Exxon Mobil Corp. [] has been running a television ad campaign promoting the safety of fracking and the need for natural gas.").

threaten water supplies. In federal filings designed to protect investors against fraud, multiple oil and gas companies have disclosed daunting lists of potential mishaps including leaks, spills, explosions, bodily injuries, limited insurance coverage, and death.⁵ Chemical disclosure records obtained by EWG reveal that companies are injecting into the ground millions of gallons of fluid that contain petroleum distillates that can be similar to diesel.⁶ Separately, Congressional investigators reported last year that between 2005 and 2009, drilling companies injected 32 million gallons of diesel or diesel-laced fluids in hydraulic fracturing operations in 19 states.⁷ The investigators found that none of the companies obtained permits for injecting diesel under the Safe Drinking Water Act, an apparent violation of the law.⁸ In 2005, Congress exempted hydraulic fracturing from the Safe Drinking Water Act, except for fracturing with diesel.⁹ Many of these distillates, including diesel, contain highly toxic chemicals such as benzene, toluene, ethylbenzene, and xylene.¹⁰ Short-term exposures to some of these chemicals can trigger temporary nervous system disorders, nausea, and fatigue.¹¹ Longer-term exposures can cause adverse health effects such as liver and kidney damage, tremors, speech impairment, and cancer, even at low concentrations.¹²

Although oil and gas companies have taken steps to manage these hazards, the drilling industry's track record has not been as flawless as it would have the public believe.¹³ As EWG reported last year, both industry and the U.S. Environmental Protection Agency have known for decades about hydraulic fracturing's potential to contaminate groundwater.¹⁴ In December 1987, the EPA reported that fracturing fluid from a shale gas well more than 4,000 feet deep had contaminated well water in Jackson County, W.Va.¹⁵ More recently, the EPA Office of Research and Development issued a draft report on Dec. 8, 2011, in which it found groundwater contamination

⁵ For example, Houston-based Cabot Oil & Gas Corporation tells investors in a recent annual report that its business "involves a variety of operating risks," which include "well site blowouts, cratering and explosions; . . . uncontrolled flows of natural gas, oil or well fluids; . . . pollution and other environmental risks." Cabot Oil & Gas Corp., Annual Report (Form 10-K), at 22 (Feb. 26, 2010). According to Cabot, these risks "could result in injury or loss of human life, . . . significant damage to or destruction of property, [and] environmental pollution . . ." Id.

⁶ Dusty Horwitt, Env'tl. Working Group, Drilling Around the Law 2 (2010), <http://static.ewg.org/files/EWG-2009drillingaroundthelaw.pdf> [hereinafter Horwitt, Drilling Around the Law].

⁷ Letter from U.S. Representatives Henry A. Waxman, Edward J. Markey, and Diana DeGette to Lisa Jackson, Adm'r, U.S. Env'tl. Prot. Agency (Jan. 31, 2011), <http://democrats.energycommerce.house.gov/sites/default/files/documents/Jackson.EPADieselFracking.2011.1.31.pdf>.

⁸ Id.

⁹ Id.

¹⁰ Horwitt, Drilling Around the Law, *supra* note 6, at 2.

¹¹ Id. at 11.

¹² Id.

¹³ Edward McAllister, Debate on Halting NY Fracking Ban Reaches Endgame, Reuters, Nov. 29, 2011, <http://www.reuters.com/article/2011/11/29/us-fracking-newyork-idUSTRE7AS2QL20111129> ("With more than 1 million wells safely hydraulically fractured in the United States, the nation's oil and natural gas industry has a stellar record of safety," said Brad Gill, executive director of the Oil and Gas Association of New York . . .").

¹⁴ Dusty Horwitt, Env'tl. Working Group, Cracks in the Façade: 25 Years Ago, EPA Linked 'Fracking' to Water Contamination (2011), http://static.ewg.org/reports/2011/fracking/cracks_in_the_facade.pdf.

¹⁵ Id. at 3.

in Pavillion, Wyo., near the site of a major oil and natural gas field.¹⁶ Among other contaminants, the EPA Office of Research and Development found extremely high levels of benzene in one of its deep monitoring wells.¹⁷ According to the findings, “the data indicates likely impact to ground water that can be explained by hydraulic fracturing.”¹⁸

Improper cementing of wells sometimes combined with fracturing has also contributed to several incidents of contamination from natural gas drilling. In 2004, the Colorado Oil and Gas Conservation Commission issued a then-record fine against Encana Oil & Gas for polluting a creek in Garfield County with unsafe levels of benzene.¹⁹ The pollution occurred after the company improperly cemented a well and proceeded to fracture it.²⁰ Several groundwater monitoring wells near the creek continue to detect benzene levels above state safety standards more than seven years after the event.²¹ In 2007, regulators in Ohio concluded that the combination of improper cementing and fracturing caused a house to explode and contaminated more than 20 water wells in Geauga County.²² In 2009, the Pennsylvania Department of Environmental Protection fined Cabot Oil & Gas Corp. for polluting well water for 19 families in Dimock, Pa., due to improper cementing of natural gas wells.²³ In 2011, the Department fined Chesapeake Energy Corp. nearly \$1 million for contaminating well water serving 16 families in Bradford County, once again due to improper cementing.²⁴

New York could be next to experience such problems if the DEC fails to exercise sufficient forethought about how to regulate high volume hydraulic fracturing. The record of current industry practices creates many uncertainties about whether the practice is safe and how it can be effectively regulated. Until the DEC resolves these doubts, it should delay authorizing high volume hydraulic fracturing in New York.

¹⁶ U.S. Env'tl. Prot. Agency Office of Research & Dev., Investigation of Ground Water Contamination Near Pavillion, Wyoming xi (Draft 2011),

http://www.epa.gov/region8/superfund/wy/pavillion/EPA_ReportOnPavillion_Dec-8-2011.pdf.

¹⁷ Id. at xi-xii.

¹⁸ Id. at xiii.

¹⁹ Colo. Oil & Gas Conservation Comm'n, Order No. 1V-276 (Sept. 16, 2004); Dennis Webb, Commission: EnCana Fine 'Sizeable', Glenwood Springs Post Indep., Aug. 17, 2004,

<http://www.postindependent.com/article/20040817/VALLEYNEWS/108170010>.

²⁰ Colo. Oil & Gas Conservation Comm'n, Order No. 1V-276 (Sept. 16, 2004).

²¹ Letter from Scotty Mann, Hydrogeologist/Project Manager, Rule Engineering, LLC, to Charlie Jansen, Encana Oil & Gas (Dec. 6, 2011),

<http://cogcc.state.co.us/Library/PiceanceBasin/WestDivideCreekSeep/Divide%20Creek%20Report2011-09.pdf>.

²² Ohio Dep't of Natural Res., Report on the Investigation of the Natural Gas Invasion of Aquifers in Bainbridge Township of Geauga County, Ohio 4-5, 45-46 (2008), www.dnr.state.oh.us/Portals/11/bainbridge/report.pdf.

²³ Consent Order & Agreement in re Cabot Oil & Gas Corp. (Pa. Dep't Env'tl. Prot. Nov. 4, 2009); see also Consent Order & Settlement Agreement in re Cabot Oil & Gas Corp. (Pa. Dep't Env'tl. Prot. Dec. 15, 2010).

²⁴ Marc Levy, DEP Fines Chesapeake \$1 Million, Associated Press, May 18, 2011,

<http://www.pressconnects.com/article/20110517/NEWS01/105170345/DEP-fines-Chesapeake-1-million>.

Inadequacies in the DEC's proposed regulations underscore why New York is simply unready to allow this type of drilling:

1) **The DEC's disclosure section lacks sufficient clarity and scope to ensure that communities fully appreciate the hazards hydraulic fracturing chemicals pose to public health and the environment.**

EWG strongly supports efforts to increase the disclosure of chemicals used in hydraulic fracturing. Yet the rules proposed by the DEC leave far too much ambiguity about companies' reporting obligations and must be amended to close loopholes. Moreover, their scope is too limited to give the public access to the information it needs to understand these chemicals' toxicity and should therefore be broadened.

Section 560.3(c)(1) of the DEC's proposed rules delineates several types of information that companies would have to disclose for each "additive product" used in hydraulic fracturing operations.²⁵ However, the term "product" is troublingly vague because companies may understand it as referring solely to the brand name of hydraulic fracturing chemicals rather than to the specific chemical names of the fluids' constituents. It is impossible to effectively assess a chemical's toxicity based on brand name alone. Thus, the section needs additional clarification about the term "product,"²⁶ which should cover the brand name for an additive, as well as its individual constituents.

Section 560.3(c)(1)(v) requires "documentation" from companies to show that their chemicals are less toxic than alternatives on the market.²⁷ EWG supports this requirement, but believes that the rule currently lacks guidance about what constitutes acceptable "documentation." The DEC needs to establish minimum standards to give companies incentive to submit meaningful evidence of the safety of their hydraulic fracturing chemicals. Absent such standards, the rule will be largely ineffective at achieving its purpose.

In addition to these ambiguity problems, EWG takes issue with the scope of Section 560.3, which must be more comprehensive if it is to protect public health and the environment. Missing from Section 560.3 are the following requirements:

- i.) Companies must disclose both the volume and concentration of each chemical constituent used in each hydraulic fracturing fluid additive;

²⁵ High Volume Hydraulic Fracturing Proposed Regulations, 33 N.Y. Reg. 11, 12 (proposed Sept. 28, 2011) (to be codified at N.Y. Codes R. & Regs. tit. 6, § 560.3(c)(1)).

²⁶ EWG believes that the definition of "product" in Section 560.2(b)(17) fails to resolve the ambiguity about whether companies have to report the chemical constituents used in their hydraulic fracturing chemicals in addition to disclosing their brand name. See High Volume Hydraulic Fracturing Proposed Regulations, 33 N.Y. Reg. 11, 12 (proposed Sept. 28, 2011) (to be codified at N.Y. Codes R. & Regs. tit. 6, § 560.2(b)(17)).

²⁷ High Volume Hydraulic Fracturing Proposed Regulations, 33 N.Y. Reg. 11, 12 (proposed Sept. 28, 2011) (to be codified at N.Y. Codes R. & Regs. tit. 6, § 560.3(c)(1)(v)).

ii.) Companies must disclose the volume, concentration, and identity of any radioactive tracers used in their hydraulic fracturing operation; and

iii.) Companies must send a letter by certified mail to every resident living within a two-mile radius of a gas well that contains the chemical information disclosed in their drilling permit application.

EWG also believes that the DEC must amend its treatment of confidential business information (CBI) related to hydraulic fracturing. As an initial matter, the DEC should only allow CBI status for hydraulic fracturing fluid formulas, but not for the names of individual chemical constituents. The DEC also should require companies to immediately disclose to medical personnel any CBI germane to treating individuals who experience an adverse event after exposure to hydraulic fracturing chemicals without requiring a prior confidentiality agreement.

The public has a right to know about the hazards posed by hydraulic fracturing chemicals, especially when oil and gas companies are expanding operations into more populated areas. The DEC's proposed disclosure requirements are meant to bolster that right, but as EWG's assessment shows, the proposal lacks sufficient scope and clarity.

2) The DEC's setback requirements fall short of creating a protective buffer between drilling operations and various water sources and floodplains.

EWG believes that setback requirements for natural gas wells are critical to managing the risks posed by hydraulic fracturing. However, the DEC's proposed setback distances would fall short of creating an adequate buffer between gas wells and various water sources and floodplains.

As it is drafted, Section 560.4 would prevent companies from building well pads within 500 feet of private water wells, within 500 feet of a primary aquifer, or anywhere within a 100-year floodplain boundary.²⁸ It would also prohibit companies from building well pads within 2,000 feet of public water supply wells, reservoirs, lakes, and river or stream intakes.²⁹ These distances are too close given the distance drilling contaminants have traveled laterally in documented cases of pollution from natural gas drilling.

A 2011 report by researchers at Duke University studied the effects of gas drilling and hydraulic fracturing on water quality in New York and Pennsylvania.³⁰ Researchers analyzed samples from private water wells and found increased methane levels the closer

²⁸ High Volume Hydraulic Fracturing Proposed Regulations, 33 N.Y. Reg. 11, 12 (proposed Sept. 28, 2011) (to be codified at N.Y. Codes R. & Regs. tit. 6, §§ 560.4(a)(1)-(3)).

²⁹ High Volume Hydraulic Fracturing Proposed Regulations, 33 N.Y. Reg. 11, 12 (proposed Sept. 28, 2011) (to be codified at N.Y. Codes R. & Regs. tit. 6, § 560.4(a)(4)).

³⁰ Stephen G. Osborn, et al., Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing, 108 PNAS 8172 (2011), <http://www.nicholas.duke.edu/cgc/pnas2011.pdf>.

the wells were to gas operations.³¹ Notably, the report shows samples collected within about 3,300 feet of a gas well containing concentrations exceeding action levels for hazard mitigation set by the U.S. Department of the Interior.³² The Duke study reinforces what earlier field tests have found. In the abovementioned Garfield County, Colo., and Geauga County, Ohio, incidents, experts found increased methane levels in water collected between 2,300 and 4,000 feet from the nearest gas well.³³

As these findings show, chemicals used in hydraulic fracturing have the potential to migrate distances far greater than the setbacks currently proposed. Moreover, parts of New York where high volume hydraulic fracturing would likely occur have experienced floods exceeding the 100-year floodplain several times since 2004,³⁴ which calls into question the reliability of floodplain boundaries in light of these events. The DEC itself acknowledges that maps of floodplains have been shown to be inaccurate in recent floods.³⁵ Accordingly, the DEC's proposed setbacks fail to provide adequate protection for public health and the environment. Before the DEC authorizes high volume hydraulic fracturing the Department must study more closely the distance hydraulic fracturing fluids can travel from natural gas wells and amend its setback requirements to reflect those findings.

³¹ Id. at 8172-74.

³² Id. at 8173 (see figure 3).

³³ See URS Corp., Phase I Hydrogeologic Characterization of the Mamm Creek Field Area in Garfield County 5-10, 5-26 (2006), http://www.garfield-county.com/oil-gas/documents/final_report_1.pdf; see also E. Scott Blair, et al., Expert Panel Technical Report: Bainbridge Township Subsurface Gas Invasion 3-113 (2010), <http://ohiodnr.com/Portals/11/bainbridge/DMRM%203E%20Chapter%203%20p5%20-%20Additional%20LEL%20Data.pdf>.

³⁴ E.g., Corey Kilgannon, Flooding Persists in Southern Tier of New York, N.Y. Times, Sept. 9, 2011, <http://www.nytimes.com/2011/09/10/nyregion/ny-region-in-triage-mode-as-flooding-persists.html> (“In 2005, we had the 100-year flood, and in 2006, we had the 500-year flood What-year flood is this?”).

³⁵ N.Y. State Dep't Env'tl. 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 2-32 (Revised Draft 2011), <http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf>.

Conclusion

EWG thanks the DEC for the opportunity to comment on its high volume hydraulic fracturing proposed regulations. As the DEC considers next steps, it must carefully review safety claims by the oil and gas industry. The record before the DEC does not support claims that drilling can be conducted safely, at least with any adequate level of confidence. The EPA's study of water pollution in Pavillion, Wyo., is ongoing. So, too, is a separate EPA study examining the impact of hydraulic fracturing on water supplies nationally. The DEC should wait for the results of those studies and conduct its own rigorous scientific research before opening the door to high volume hydraulic fracturing. Currently, the DEC's proposed regulations fail to provide critical safeguards for New York residents, which is unacceptable given the potential long-term consequences of bringing high volume hydraulic fracturing to the Empire State.

Sincerely,



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