

January 11, 2013

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

Re: EWG's Comments on DEC Revised Draft HVHF Regulations

Dear Sir or Madam:

The Environmental Working Group is pleased to submit the following comments on the New York State Department of Environmental Conservation's (DEC) revised proposed regulations for high-volume hydraulic fracturing.<sup>1</sup> EWG is a non-partisan, non-profit organization dedicated to marshaling the power of information to protect public health and the environment. As part of that mission, EWG has given particular attention to the drilling process known as hydraulic fracturing and continues to be actively engaged in New York's debate over the future of high-volume hydraulic fracturing in the state.

In November 2011, New York Governor Andrew M. Cuomo pledged to "let the science and the facts" guide the state's review of high-volume hydraulic fracturing — "not emotion and not politics."<sup>2</sup> Time and again, however, the DEC has shown that it is prepared to permit this drilling technique in New York before undertaking the requisite science to ensure that high-volume hydraulic fracturing can be done safely. Like the regulations proposed by the DEC in 2011, the revised rules contain too many flaws and scientific gaps to ensure that high-volume hydraulic fracturing would be conducted safely. In view of these shortcomings, the DEC must not allow high-volume hydraulic fracturing to go forward until scientists perform more research to determine whether this type of energy production can be conducted in a way that does not compromise public health and the environment, and if so, what safeguards are necessary to avoid potentially devastating consequences.

As discussed in greater detail below, EWG's review of the DEC's revised regulations revealed the following shortcomings:

- **The New York Commissioner of Health has not yet completed his assessment of the public health impacts of hydraulic fracturing.**
- **The setback requirements do not create protective buffers around sensitive water supplies and floodplains.**

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<sup>1</sup> 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. 8, 2012).

<sup>2</sup> Thomas Kaplan, Millions Spent in Albany Fight to Drill for Gas, N.Y. Times, Nov. 26, 2011, <http://www.nytimes.com/2011/11/26/nyregion/hydrofracking-debate-spurs-huge-spending-by-industry.html?pagewanted=all>.

- **The regulations do not protect water resources from the effects of lower-volume hydraulic fracturing;**
- **The provisions for use and disclosure of fracking chemicals are inadequate and will continue to jeopardize public health.**
- **The regulations fail to ensure that the toxic wastewater associated with high-volume hydraulic fracturing will be disposed of safely and responsibly.**

For New Yorkers, the stakes in the DEC's decision could not be higher. As far back as 1987, the U.S. Environmental Protection Agency linked hydraulic fracturing to water contamination.<sup>3</sup> By drilling companies' own admission, oil and gas production and drilling operations are inherently risky activities that can result in leaks, spills, fires, discharges of toxic gases, explosions and death.<sup>4</sup> Moreover, the risks associated with drilling and hydraulic fracturing have implications not only for public health and the environment, but also for property owners and the lending community. Properties under oil and gas leases could lose resale value, potentially resulting in significant financial loss for property owners.<sup>5</sup> Oil and gas drilling activity also may cause property owners to unwittingly violate the terms of their mortgages, as many lenders require property owners to obtain permission before allowing hazardous activities such as drilling on mortgaged property.<sup>6</sup> Individuals who allow drilling activity on mortgaged property without the permission of their lenders may have to pay off the full amount of their mortgages immediately or find themselves in foreclosure.<sup>7</sup>

Given the many environmental, public health and economic risks associated with high-volume hydraulic fracturing, New Yorkers deserve a rigorous scientific review of the issue and robust regulations that will ensure clean air and water, economic security and public health before any decision is made to authorize high-volume hydraulic fracturing in the state. The DEC has fallen well short of that mark and, once again has failed to develop adequate regulations.

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<sup>3</sup> 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](http://static.ewg.org/reports/2011/fracking/cracks_in_the_facade.pdf); Ian Urbina, A Tainted Water Well, And Concern There May Be More, N.Y. Times, Aug. 4, 2011, at A13.

<sup>4</sup> Dusty Horwitt, Env'tl. Working Group, Drilling Doublespeak (2011), [http://static.ewg.org/pdf/Drilling\\_Doublespeak.pdf](http://static.ewg.org/pdf/Drilling_Doublespeak.pdf).

<sup>5</sup> Id. See also Mireya Navarro, Gas Drilling Jitters Unsettle Catskills Sales, N.Y. Times, Sept. 30, 2012, at RE1, [http://www.nytimes.com/2012/09/30/realestate/fracking-fears-hurt-second-home-sales-in-catskills.html?pagewanted=all&\\_r=4&](http://www.nytimes.com/2012/09/30/realestate/fracking-fears-hurt-second-home-sales-in-catskills.html?pagewanted=all&_r=4&); Peggy Heinkel-Wolfe, Drilling Can Dig Into Land Value, Dallas Morning News, Sept. 18, 2010, <http://www.dallasnews.com/incoming/20100918-Drilling-can-dig-into-land-value-9345.ece>.

<sup>6</sup> Tompkins County NY Council of Gov'ts Gas Drilling Task Force, Gas and Oil Leases: Impact on Residential Lending (Mar. 24, 2011 & as rev. Nov. 15, 2011), [http://www.tompkins-co.org/tccog/Gas\\_Drilling/Focus\\_Groups/LandValues\\_Assessment.html](http://www.tompkins-co.org/tccog/Gas_Drilling/Focus_Groups/LandValues_Assessment.html) [hereinafter Tompkins County, Oil and Gas Leases]; Ian Urbina, Rush to Drill for Natural Gas Creates Conflicts with Mortgages, N.Y. Times, Oct. 19, 2011, <http://www.nytimes.com/2011/10/20/us/rush-to-drill-for-gas-creates-mortgage-conflicts.html?pagewanted=all>.

<sup>7</sup> Tompkins County, Oil and Gas Leases, supra note 6, at 2-3; Urbina, supra note 6.

**(1) The New York Commissioner of Health has not yet completed and published his assessment of the public health impacts of high-volume hydraulic fracturing.**

EWG strongly believes that any decision to authorize high-volume hydraulic fracturing in the state must be informed by an objective, comprehensive analysis of the potential health consequences for the people of New York. The DEC's decision to release the revised regulations before the completion and publication of a pending health assessment raises serious questions as to whether the agency is committed to ensuring that the public is protected from the many health risks associated with gas drilling and high-volume hydraulic fracturing.

Natural gas production poses many risks to human health. The drilling and hydraulic fracturing process can include the use of dangerous chemicals, such as the known human carcinogen benzene and the neurotoxins ethylbenzene, toluene and xylene.<sup>8</sup> Some of these same chemicals occur naturally in natural gas deposits and, when disturbed, can migrate to the surface and contaminate water supplies.<sup>9</sup> In addition, the drilling process produces wastewater that can contain high levels of carcinogenic radioactive contaminants such as radium. In Pennsylvania, sewage treatment plants that received this wastewater discharged their outflow into waterways that supply public drinking water.<sup>10</sup> Further, air pollution from drilling operations can also include benzene and other contaminants and create ozone, all of which can harm human health.<sup>11</sup>

After receiving repeated requests from health professionals and medical experts to involve the New York Department of Health in developing the state's drilling plan, DEC Commissioner Joseph Martens in September 2012 asked the New York Commissioner of Health, Dr. Nirav Shah, to review the DEC's assessment of high-volume hydraulic fracturing, potentially in conjunction with outside experts.<sup>12</sup> Shah later chose three public health experts to assist in the review of the state's drilling plan.<sup>13</sup> Before the Department of Health and the experts had an opportunity to complete and publish their much-needed health analysis, however, the DEC

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<sup>8</sup> N.Y. State Dep't. Envtl. 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 (2011), [hereinafter NYDEC SGEIS] at 5-40 through 5-79.

<sup>9</sup> See Marathon, Material Safety Data Sheets, Marathon Oil Company Products, Natural Gas-Condensate C2-C8, 0197MAR001; Marathon, Material Safety Data Sheets, Marathon Oil Company Products, Natural Gas-Condensate Sour, 0245MAR001; see also URS Corp., Phase I Hydrogeologic Characterization of the Mamm Creek Field Area in Garfield County (2006), <http://cogcc.state.co.us/> (follow link for "Library" and then "Piceance Basin") (prepared for Bd. of County Comm'rs, Garfield County, Colo.); Colo. Oil & Gas Conservation Comm'n, Order No. 1V-276 (Sept. 16, 2004), <http://cogcc.state.co.us/> (follow link for "Orders").

<sup>10</sup> Ian Urbina, Regulation Lax as Gas Wells' Tainted Water Hits Rivers, N.Y. Times, Feb. 27, 2011, at A1.

<sup>11</sup> Al Armendariz, Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements (2009) (on file with Envtl. Working Group) (report for Ramon Alvarez, Envtl. Def. Fund).

<sup>12</sup> Mireya Navarro, New York State Plans Health Review as It Weighs Gas Drilling, N.Y. Times, Sept. 20, 2012, <http://www.nytimes.com/2012/09/21/nyregion/new-york-states-decision-on-hydrofracking-will-await-health-review.html?hpw>.

<sup>13</sup> Mary Esch, Experts' Review of NY Fracking Expected Monday, Associated Press, Dec. 1, 2012, <http://www.uticaod.com/news/x1926893887/Experts-review-of-NY-fracking-expected-Monday>.

rushed ahead with revised regulations.<sup>14</sup> The DEC’s willingness to move ahead without the input of medical experts such as Dr. Shah casts serious doubt on Governor Cuomo’s promise to make this a fair, transparent and science-based process that accounts for the potential long-term effects on human health should high-volume hydraulic fracturing be allowed.

**(2) The setback requirements do not create protective buffers around water supplies and floodplains.**

EWG believes that setback requirements for natural gas wells are critical to managing the risks posed by hydraulic fracturing. Given that the setback requirements proposed by the DEC in the revised draft regulations are nearly identical to those proposed in 2011 — despite concerns raised by the U.S. Geological Survey<sup>15</sup> and others in public comments previously submitted to the record — EWG reiterates that the draft regulations fail to create adequate buffers around water supplies and floodplains.

Section 560.4 would prevent companies from locating well pads within 500 feet of a residential water well, domestic supply spring or water supply for livestock or crops.<sup>16</sup> It also would prohibit companies from building well pads within 500 feet of a primary aquifer, within a 100-year floodplain or within 2,000 feet of any public water supply.<sup>17</sup> As scientific data and the experience of other states engaged in hydraulic fracturing have shown, these setbacks are grossly insufficient to protect the state’s precious water resources from potential contamination.

Chemicals used in hydraulic fracturing can migrate over distances far greater than the setbacks currently proposed. A 2011 report by researchers at Duke University analyzed samples from private water wells and found increased methane levels the closer the wells were to gas drilling and hydraulic fracturing operations.<sup>18</sup> Notably, the report shows samples collected within about 3,300 feet of a gas well containing concentrations that could pose an explosion risk, according to standards for hazard mitigation set by the U.S. Department of the Interior.<sup>19</sup> In 2004, natural gas and associated contaminants traveled underground more than 4,000 feet laterally from a well that had been improperly cemented and subsequently fractured by Canada-based Encana Corp. in Garfield County, Colo., according to state officials.<sup>20</sup> As a result, a creek was contaminated with

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<sup>14</sup> The New York Times recently reported that a health analysis completed by the New York State Health Department in early 2012 consisted of only eight pages and summarily concluded that high-volume hydraulic fracturing could be conducted safely in New York. Danny Hakim, Gas Drilling Is Called Safe in New York, N.Y. Times, Jan. 3, 2012, [http://www.nytimes.com/2013/01/03/nyregion/hydrofracking-safe-says-ny-health-dept-analysis.html?\\_r=0](http://www.nytimes.com/2013/01/03/nyregion/hydrofracking-safe-says-ny-health-dept-analysis.html?_r=0).

<sup>15</sup> See U.S. Geological Survey, New York Water Science Center, Comments on the Revised Draft Supplemental Generic Environmental Impact Statement 6-7 (2012).

<sup>16</sup> The DEC may permit variances to these setback requirements. Proposed 6 NYCRR § 560.4(a).

<sup>17</sup> Id.

<sup>18</sup> Stephen G. Osborn, et al., Methane Contamination of Drinking Water Accompanying Gas-Well Drilling and Hydraulic Fracturing, 108 PNAS 8172-74 (2011), <http://www.nicholas.duke.edu/cgc/pnas2011.pdf>.

<sup>19</sup> Id. at 8173 (see Figure 3).

<sup>20</sup> URS Corp., Phase I Hydrogeologic Characterization of the Mamm Creek field Area in Garfield County (2006), <http://cogcc.state.co.us/> (follow link for “Library” and then “Piceance Basin”) (prepared for Bd. of County Comm’rs, Garfield County, Colo.); Colo. Oil & Gas Conservation Comm’n, Order No. 1V-276 (Aug. 16, 2004), <http://cogcc.state.co.us/> (follow link for “Orders”).

dangerous levels of carcinogenic benzene.<sup>21</sup> Similarly, in 2007, a gas well fractured by Ohio Valley Energy Systems Corp. in Bainbridge, Ohio, caused natural gas to contaminate 23 nearby water wells, two of which were more than 2,300 feet from the drilling site.<sup>22</sup> Before the DEC authorizes high-volume hydraulic fracturing, the agency must study more closely the distance that hydraulic fracturing fluids and other contaminants can travel from natural gas wells and amend its setback requirements to reflect those findings.

The DEC also must revisit its approach to drilling in floodplains. During periods of intense rain, flooding could wash contaminants from drilling waste pits or rupture tanks holding toxic fluids used by drillers. The proposed regulations state that drilling will not be allowed in 100-year floodplains, but given recent history, this proposed ban is not protective enough. In several of the last 10 years, flooding in New York exceeded 100-year levels in at least some counties where high-volume hydraulic fracturing and horizontal drilling is likely to occur.<sup>23</sup> In addition, the DEC has admitted that maps showing the location of floodplains have been inaccurate in recent floods.<sup>24</sup> Accordingly, the DEC's proposed prohibition on drilling in 100-year floodplains fails to provide adequate protection for public health and the environment.

### **(3) The regulations do not protect water resources from the effects of lower-volume hydraulic fracturing.**

EWG is concerned that the DEC, without scientific explanation or justification, has once again proposed a volume threshold of 300,000 gallons of water per well for the definition of high-volume hydraulic fracturing.<sup>25</sup> According to the DEC, wells that exceed the threshold of 300,000 gallons of water per well would be subject to the proposed draft regulations, while wells that use less than that amount would not be considered high-volume and, as such, would only be regulated by outmoded environmental protection measures adopted two decades ago.<sup>26</sup> The DEC's proposed setbacks and drilling prohibitions around water supplies, floodplains and other sensitive areas therefore would not apply to wells fractured with lower volumes of water. Though there is some evidence to suggest that higher-volume hydraulic fracturing presents greater environmental and public health risks, there is little evidence that lower-volume fracturing is fundamentally safer. At a minimum, the DEC should conduct more research before allowing any drilling near sensitive areas.

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<sup>21</sup> *Id.*

<sup>22</sup> Ohio Dep't of Natural Res., Report on the Investigation of the Natural Gas Invasion of Aquifers in Bainbridge Township of Geauga County, Ohio 6, 46-7 (2008); E. Scott Bair, et al., Expert Panel Technical Report, Subsurface Gas Invasion Bainbridge Township, Geauga County, Ohio 3-113 (2010), <http://www.ohiodnr.com/mineral/bainbridge/tabid/20484/default.aspx> (submitted to Ohio Dep't of Natural Res., Div. of Mineral Res. Mgmt.); Ohio Dep't of Natural Res., Order Number 2009-17 (Apr. 14, 2009) (see attachments A, B).

<sup>23</sup> See U.S. Geological Survey, Flood of April 2-3, 2005, Neversink River Basin, New York (2006), <http://pubs.usgs.gov/of/2006/1319/>; U.S. Geological Survey, Remnants of Tropical Storm Lee Cause Record Flooding in the Susquehanna River Basin (2011), <http://ny.water.usgs.gov/leeindex.html> (see table of provisional flood peaks and flood frequency estimates).

<sup>24</sup> NYDEC SGEIS, *supra* note 8, at 2-32.

<sup>25</sup> Proposed 6 NYCRR § 750-3.2(b)(22).

<sup>26</sup> NYDEC SGEIS, *supra* note 8, at 3-6.

#### **(4) The provisions for fracking chemical use and disclosure continue to put health at risk**

EWG strongly supports efforts to increase the disclosure of chemicals used in hydraulic fracturing and to limit the use of dangerous substances. The DEC's provisions on chemical disclosure and use — although an improvement over similar provisions released in September 2011 — leave far too much leeway for companies to hide important information and use harmful chemicals. These provisions must be amended to reduce risks to public health and the environment.

Section 560.3(d)(24) provides that “diesel fuel may not be used as the base fluid for hydraulic fracturing operations.”<sup>27</sup> This section implies that diesel may still be used in hydraulic fracturing operations as long as it is not used as a “base fluid.” EWG believes that diesel and other petroleum distillates with a similar chemical profile should not be used at all in hydraulic fracturing. The U.S. Environmental Protection Agency has previously found that the use of diesel fuel in hydraulic fracturing fluid is the “greatest threat” to underground sources of drinking water because diesel contains benzene, toluene, ethylbenzene and xylene in amounts that exceed safe levels at the point of injection.<sup>28</sup> EWG has found that drilling companies use many other petroleum distillates in hydraulic fracturing fluid that are similar to diesel and contain equal or greater levels of benzene, a human carcinogen. EWG estimates that in a worst-case scenario, the petroleum distillates used to hydraulically fracture a single well in New York could contain enough benzene to render unsafe more than 100 billion gallons of drinking water, more than 10 times as much water as the state of New York uses in a single day.<sup>29</sup> New York should prohibit the use of diesel and all similar petroleum distillates in hydraulic fracturing.

In addition to allowing the use of diesel, the new draft regulations continue to place the public at risk by proposing section 560.3(d)(2), which allows drilling companies to withhold from the public the identity of chemicals deemed to be “trade secrets.” This exception could swallow the rule by allowing drilling companies to hide the use of dangerous substances by labeling them as trade secrets. If this occurs, the public could be unknowingly exposed to serious risks, and researchers might not know which chemicals to test for in determining whether fracturing caused pollution. Recent evidence suggests that this scenario is not merely hypothetical. According to a review of fracking chemical disclosures for natural gas and oil wells in 20 states by EnergyWire, a Washington, D.C.-based news outlet, 65 percent of disclosures made to the drilling industry database, FracFocus, included at least one trade secret.<sup>30</sup> A review by Bloomberg of disclosure data from eight states found “many of the wells that are listed on FracFocus have at least one or

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<sup>27</sup> Proposed 6 NYCRR § 560.3(d)(24).

<sup>28</sup> U.S. Env'tl. Prot. Agency, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs 4-11* (2004) (“The use of diesel fuel in fracturing fluids poses the greatest threat to [underground sources of drinking water] because [benzene, toluene, ethylbenzene, and xylene] compounds in diesel fuel exceed the [maximum contaminant level] at the point-of-injection . . .”).

<sup>29</sup> Dusty Horwitt, Env'tl. Working Group, *Drilling Around the Law* (2010), <http://static.ewg.org/files/EWG-2009drillingaroundthelaw.pdf>.

<sup>30</sup> Mike Soraghan, *Two-Thirds of Frack Disclosures Omit ‘Secrets’*, Energy Wire, Sept. 26, 2011, <http://www.energywire.com> (copy on file at Env'tl. Working Group).

two chemicals marked confidential. Others have far more.”<sup>31</sup> At most, the DEC should allow trade secret status only for hydraulic fracturing fluid formulas and not for the individual chemical constituents. This way, the public would know the identity of each chemical injected into a well, but companies’ formulas would be protected. The DEC also should require companies to immediately disclose to medical personnel any trade secret germane to treating individuals who experience an adverse event after exposure to hydraulic fracturing chemicals, without requiring a prior confidentiality agreement.

EWG is pleased to see that the DEC has proposed a requirement that companies disclose the individual chemical constituents in hydraulic fracturing fluid (rather than products potentially consisting of multiple chemicals) “to be intentionally added to the base fluid.”<sup>32</sup> However, it is problematic that this provision implies that companies will not have to disclose chemicals unintentionally added to the base fluid or chemicals naturally occurring in the base fluid. Such chemicals could be extremely dangerous, especially in cases in which companies reuse wastewater from previous hydraulic fracturing operations as the base fluid (a practice encouraged by DEC),<sup>33</sup> or in cases in which companies use petroleum distillates other than diesel as the base fluid.<sup>34</sup> Wastewater from hydraulic fracturing operations can have extremely high levels of benzene, whether intentionally added or naturally occurring, and very high levels of naturally occurring radioactive contaminants.<sup>35</sup> The DEC should require that companies disclose the known constituents of the base fluid and, in addition, conduct chemical testing of the base fluid for a minimum set of contaminants and disclose the results. The testing should include analyses for at least the following contaminants: benzene, toluene, ethylbenzene, xylene, radium, and gross alpha.

EWG remains concerned that the “documentation” required by the DEC to show that fracking fluid additives are at least as safe as known alternatives remains too vague.<sup>36</sup> The DEC’s proposal that the documentation be made based on “existing data and studies” will count for little unless these data and studies are subject to review by impartial, qualified experts. Those with a financial stake in the drilling industry would not qualify as such experts, nor would a panel composed solely or primarily of DEC employees, given the DEC’s recent record of sharing draft regulations exclusively with the drilling industry.<sup>37</sup> The DEC must establish minimum standards for this review process so that drilling companies cannot simply use self-serving “data and studies” to win approval for chemicals that are more dangerous than known alternatives.

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<sup>31</sup> Benjamin Haas, et al., Fracking Hazards Obscured in Failure to Disclose Wells, Bloomberg, Aug. 14, 2012, <http://www.bloomberg.com/news/2012-08-14/fracking-hazards-obscured-in-failure-to-disclose-wells.html>.

<sup>32</sup> Proposed 6 NYCRR § 560.3(d)(1).

<sup>33</sup> Proposed 6 NYCRR § 554.1(c)(1).

<sup>34</sup> Proposed 6 NYCRR § 560.6(c)(24) (prohibiting the use of diesel as a base fluid).

<sup>35</sup> Urbina, *supra* note 10.

<sup>36</sup> Proposed 6 NYCRR § 560.3(d).

<sup>37</sup> Thomas Cluderay, Env’tl. Working Group, Inside Track: Cuomo Team Gives Drillers Jump Start to Influence Fracking Rules (2012), <http://www.ewg.org/report/inside-track-cuomo-team-gave-drillers-edge-influence-fracking-rules>.

Finally, EWG would like to see the following provisions added to section 560.3:

- Companies must disclose both the volume and concentration of each chemical constituent used in a well. Such disclosure would help researchers and citizens learn which chemicals are most likely to show up in nearby water supplies.
- Companies must disclose the volume, concentration and identity of any tracers used in their hydraulic fracturing operations. Such disclosure would allow researchers and residents to link the presence of such tracers in nearby water supplies to a particular hydraulic fracturing operation.
- 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. This provision would help guarantee that disclosure of hydraulic fracturing fluid chemicals and other details is meaningful, because this type of disclosure would be most likely to reach those directly affected by any problems with drilling or fracturing.

**(5) The regulations fail to ensure that the toxic wastewater associated with high-volume hydraulic fracturing will be disposed of safely and responsibly.**

EWG believes that the DEC has failed to demonstrate that the large volumes of toxic wastewater associated with high-volume hydraulic fracturing could be disposed of in a way that does not harm New York’s environment or the health of New York residents. The revised regulations would require the owner or operator of a high-volume hydraulic fracturing well site to “submit and receive approval for a plan for the environmentally safe disposition and/or disposal of [such] used drilling mud, flowback water and production brine.”<sup>38</sup> However all of the disposal options addressed in the regulations — reuse, treatment, and underground injection<sup>39</sup> — have significant shortcomings.

As drafted, section 554.1(c) would require owners and operators to state in their disposal plans that they “will maximize the reuse and/or recycling of used drilling mud, flowback water and production brine to the maximum extent feasible.”<sup>40</sup> Yet recent industry practices in Pennsylvania demonstrate that only some wastewater is being reused. In 2011, drilling companies in Pennsylvania’s Marcellus Shale recycled or reused 38 percent of their flowback water, according to data compiled by state officials, meaning that most of the water still needed to be disposed of.<sup>41</sup> It is, at best, uncertain that any available system can treat the large amount of drilling wastewater that is not reused, according to experts. “Potential contaminants of concern known to be in some flow-back fluids include benzene and other volatile aromatic hydrocarbons,

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<sup>38</sup> Proposed 6 NYCRR § 554.1(c).

<sup>39</sup> Proposed 6 NYCRR § 750–3.12.

<sup>40</sup> Proposed 6 NYCRR § 554.1(c).

<sup>41</sup> Penn. Dep’t Env’tl. Protection, Oil & Gas Reporting Website - Statewide Data Downloads By Reporting Period, <https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx> (last visited May 31, 2012).



surfactants and organic biocides, barium and other toxic metals, and soluble radioactive compounds containing thorium, radium, and uranium,” a group of 59 scientists and engineers wrote to Governor Cuomo on Sept. 15, 2011.<sup>42</sup> According to the group, “[m]unicipal filtration systems were not designed with such hazards in mind, and the ability of the filtration systems to remove such hazardous substances has received little, if any, study.”<sup>43</sup>

The injection of wastewater into underground wells also carries with it significant risks, such as the earthquakes that shook Youngstown, Ohio in 2011 and 2012.<sup>44</sup> In addition to creating a risk of seismic activity, underground injection wells can leak, and injected fluids can intersect with abandoned oil and natural gas wells, migrating up these wells and breaking out near the surface, where they can contaminate groundwater.<sup>45</sup> Given these serious risks and the questions raised by the U.S. Geological Survey about the state’s estimate of natural faults,<sup>46</sup> the DEC should not allow the underground injection of wastewater in New York without further study.

Please let us know if you have any questions.

Sincerely,



Dusty Horwitt  
Senior Counsel  
Environmental Working Group



Briana Dema  
Law Fellow  
Environmental Working Group

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<sup>42</sup> Letter from Robert Howarth and 58 other scientists to N.Y. Governor Andrew M. Cuomo (Sept. 15, 2011) (on file with Env'tl. Working Group).

<sup>43</sup> *Id.*

<sup>44</sup> See Henry Fountain, Disposal Halted at Well After 11th Quake in Ohio, N.Y. Times, Jan. 2, 2012, at A11; Ohio Dep't of Natural Res., Preliminary Report on the Northstar 1 Class II Injection Well and the Seismic Events in the Youngstown, Ohio, Area 4 (2012).

<sup>45</sup> U.S. Gov't Accountability Office, Safeguards Are Not Preventing Contamination from Oil and Gas Wastes (1989), <http://www.gao.gov/products/RCED-89-97>.

<sup>46</sup> U.S. Geological Survey, *supra* note 15, at 9.