

April 15, 2011

**VIA ELECTRONIC SUBMISSION**

Commission Secretary, DRBC,  
P.O. Box 7360,  
25 State Police Drive,  
West Trenton, NJ 08628

**Re: Comments of the Public Interest Law Center of Philadelphia on the Delaware River Basin Commission's Draft Natural Gas Development Regulations, Article 7 of Part III**

Executive Director Collier and Commissioners of the DRBC:

The Public Interest Law Center of Philadelphia (the "Law Center") respectfully submits the following comments in response to the Delaware River Basin Commission's request for comments on its Draft Natural Gas Development Regulations, 18 CFR, Art. 7, Part III.

**Background Information**

The Law Center was founded in 1969 as the Philadelphia affiliate of the Lawyers' Committee for Civil Rights Under Law and was incorporated as an independent non-profit in 1974 by the Philadelphia Bar Association. The Law Center is dedicated to advancing the Constitutional promise of equal citizenship to all persons irrespective of race, ethnicity, national origin, disability, gender or poverty. The Law Center uses public education, continuing education of clients and client organizations, research, negotiation and, when necessary, the courts to achieve systemic reforms that advance the central goals of self-advocacy, social justice and equal protection of the law for all members of society.

The mission of the Law Center's Public Health and Environmental Justice Project (the "EJ Project") is to provide legal and technical expertise and assistance to communities of color and poverty in Southeast Pennsylvania that seek to overcome disproportionately distributed burdens of environmental impacts. Through education and outreach, public advocacy and, where necessary, litigation, we seek to empower residents and other stakeholders in these overburdened communities to improve the environmental and socioeconomic conditions that affect their daily lives. The EJ Project has a long history of productive and results-based collaboration with environmental advocates in the City of Chester, Delaware County; in the Borough of Eddystone, Delaware County; in low-income communities of color in the City of Philadelphia; and in the City of Hazleton, Luzerne County. Further, the EJ Project frequently collaborates with other environmental advocacy organizations in the Southeast Pennsylvania region.

**I. Introduction**

At this stage of the Marcellus Shale gas boom, the drilling industry envisions enormous profits and landowners dream of lucrative lease and royalty payments. But the ability to access and extract this fossil fuel from shale layers located a mile or more below the surface has outpaced the breadth and depth of the science surrounding the impacts of the horizontal drilling and hydraulic fracturing extraction processes (together, "fracking"). It is critical for the Delaware

River Basin Commission (the “DRBC” or the “Commission”) to stand up and protect the Delaware River Basin from these adverse impacts. This has never been truer than in the current context of policies recently announced by Pennsylvania Governor Corbett and Pennsylvania’s Department of Environmental Protection (“PA DEP”) that would remove authority from state inspectors to issue notices of violation at shale gas drilling sites without the express approval of the Secretary of PA DEP, thus chilling enforcement throughout the state.

For the health and welfare of the 15 million people who depend on the waters of the Delaware River Basin, the Commission cannot allow itself to succumb to pressure to allow weak regulations and unfettered drilling, or to proceed without a full evaluation of the data to be gleaned from pending scientific studies. Instead, science, reason, and public health concerns should be driving the policy and the necessary regulations. The regulations that the DRBC ultimately approves must stand for what is right, rather than what feels right for now.

## **II. While Pending Scientific Studies of the Cumulative Impacts of Fracking Remain Incomplete, the Commission Should Maintain Its Existing Moratorium on Fracking and Related Activities in the Delaware River Basin.**

It is important, first, for the Commission to examine its proposed regulations through the lens of reality: the supposedly vast quantities of natural gas locked away in the Marcellus Shale will still be there for the taking in one year, or two years, or well into the future if the Commission takes the necessary time to wait for the completion of key scientific studies before finalizing its rules on drilling and allowing any fracking or related activities to occur in the Delaware River watershed. Alarmism about the industry’s willingness to pack their bags and find another state in the Marcellus region is, frankly, absurd. If shale gas reserves are as plentiful in areas of the Delaware River Basin as has been claimed, industry will wait.

Thus, the Commission has the time and the opportunity to collect and evaluate the necessary scientific data, gain a better understanding of the long-term impacts of fracking and related activities, such as the treatment, reuse, or underground injection of flowback wastewaters, and complete a full due diligence process. Then and only then can the DRBC properly tailor a regulatory scheme that appropriately reflects the science and the full scope of safety measures that will be required if shale gas drilling, fracking, and related activities are to proceed in areas that will affect the Delaware River Basin.

We strongly urge the DRBC to (a) keep the current moratorium in place, (b) await the results of the EPA’s extensive study of cradle-to-grave shale gas drilling impacts, (c) conduct its own local cumulative impact study for the Delaware River watershed, and then (d) evaluate the results and recommendations of these two studies. At that point, the Commission should reevaluate and strengthen these proposed regulations to adequately protect the Delaware River Basin and all of those who use and depend on it, before allowing any fracking or related activities to proceed in this watershed.

### **A. Cumulative Impact Study**

To ensure that the specific concerns of the Delaware River Basin are taken into account the DRBC should conduct a cumulative impact study of fracking and horizontal drilling in this watershed. The Commission should use the recommendations from the Philadelphia City Council's Marcellus Shale Gas Drilling Impact on Philadelphia Report as guideposts for this study. (Report of Philadelphia City Council's Joint Committees on Transportation and Public Utilities and the Environment Pursuant to Resolution No. 100515: Marcellus Shale Gas Drilling's Impact on Philadelphia, Dec. 15, 2010, at 30.) The recommendations state: "The DRBC/USGS cumulative impact study of gas drilling impacts in the Delaware River Basin should emphasize human health risks. It should include not only drinking water threats, but also the impact of air pollution, the global warming impacts from 'cradle to grave' gas extraction, loss of biodiversity, and loss of scenic value. It should assess the need for adequate emergency planning related to fires, blowouts, explosions, and major contamination incidents, as well as the actual cost of worst-case scenarios, both acute and long-term (i.e. future contamination over the course of hundreds of years due to billions of gallons of toxic fluids left underground in the Delaware River Basin."(Id.)

It is imperative that the DRBC include air pollution attributable to drilling activities in its cumulative impact study, because particulate matter from air pollution can be directly deposited into surface waters or can fall to the ground when it rains, and be carried into waterways via groundwater or stormwater runoff. The air pollutants of concern come from several sources including: combustion from engines, compressors, line heaters and flares; short-term venting of gas constituents which are not flared; chemicals in the additives used for hydraulic fracturing and which remain in the flowback water to be potentially deposited in onsite or off site impoundments; and emissions from trucking activities. (Bureau of Oil & Gas Regulation, NYSDEC Division of Mineral Resources, "Draft Supplemental, Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Problem," Sept. 2009, at 6-60). It is essential that the DRBC gain a better understanding of the air pollution impacts of shale drilling and extraction activities in order to craft reasonably protective regulations.

Moreover, a recent study has called into question industry assertions that the impacts of the shale gas industry on heat-trapping gases that contribute to global warming and climate change fall well below coal's impacts. (Howarth, et al., Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations, <http://thehill.com/images/stories/blogs/energy/howarth.pdf>) Howarth, et al., conclude that the lifecycle greenhouse gas footprint attributable to shale gas drilling actually exceeds that attributable to coal over a 20-year time horizon, and is roughly equal over a 100-year time horizon. Methane is believed to be the key culprit, as current shale drilling techniques result in frequent venting and leakage of methane directly into the atmosphere, and over the short to medium term, methane is known to be a more potent greenhouse gas than carbon dioxide. Whether or not the Howarth study's conclusions about the relative lifecycle global warming impacts of shale gas and coal ultimately find support in other studies, the leakage of methane from shale gas wells into the air is undisputedly a feature of shale drilling technology as it now exists, and ought to be taken into account in the Commission's cumulative impacts study.

## **B. EPA Study**

We strongly urge the DRBC to wait, before finalizing the proposed regulations, until the EPA has completed its extensive study of fracking. The EPA study, set to be completed and released in 2012, will focus on the entire life-cycle of hydraulic fracturing, including water acquisition, chemical mixing, well construction, flowback and production water, and waste treatment and waste disposal. To fulfill its mandate to do no harm to the Delaware River Basin, the DRBC should evaluate the results and recommendations of the EPA's study before allowing shale gas drilling, fracking, or the treatment, reuse, or underground injection of flowback wastewater to proceed in any area that could impact the Delaware River Basin.

#### **i. Treatment of Flowback**

Importantly, the EPA study will examine the impacts of inadequate treatment of flowback water and the effectiveness (or ineffectiveness) of current treatment methods. This includes an examination of how effective current treatment facilities are at removing naturally occurring radioactive materials (NORMs) from the flowback wastewater. High levels of radium-226, a leading cause of lung cancer and bone cancer, are known to occur naturally in the Marcellus Shale. Samples have shown levels of radium-226 as high as 16,000 picocuries per liter; this is 3,200 times the safe drinking water standards. (Marcellus Shale Gas Drilling's Impact on Philadelphia, at 14.) Waste water treatment does not typically remove all radioactive material from the treated water, and numerous news reports have demonstrated that Pennsylvania waters are already receiving these discharges containing high levels of radioactive substances from treatment facilities that are ill-equipped, and even unequipped, to handle wastewater from Marcellus Shale drilling activities. Some supposedly "treated" wastewaters that are discharged into bodies of water contain high concentrations of radium-226, thus presenting a health threat to those who may ingest it. (Id.) The Commission must act to stop the treatment of flowback water at facilities that are not equipped to handle these elevated levels of radioactive materials, until the science and treatment technology catches up. (I. Urbina, "Regulation Lax as Gas Wells' Tainted Water Hits Rivers," New York Times, February 27, 2011 pg 1, 22, 23.) The EPA study will more fully address the human-health based standards to which flowback water must be treated. The DRBC should wait for this critical guidance before allowing any fracking or treatment of flowback to proceed in the Delaware River Basin.

#### **ii. Well Construction**

The EPA study will also examine well construction, and the toxic effects of naturally occurring toxic substances, including the methane that makes up a majority of natural gas. Methane has previously been shown, in numerous cases in Pennsylvania and other areas where fracking techniques are prevalent, to have migrated into water wells and aquifers during the hydraulic fracturing process and contaminated drinking water. (See, e.g., A. Lustgarten, "Cabot Oil & Gas's Marcellus Drilling to Slow After PA Environment Officials Order Wells Closed," Pro Publica, April 16, 2009.) Improper well casing has been found to be a major factor in the leakage of methane. In Dimock, Pennsylvania, nine square miles of aquifer was polluted because of a methane excursion from one well.

### **III. Insufficiency of the Commission's Proposed Regulations**

The proposed regulations on certain issues remain too vague or too weak, and fall short of what the Delaware Riverkeeper calls the DRBC mandate to “Do No Harm” to the Delaware River Basin. (Delaware Riverkeeper Network, <http://www.delawariverkeeper.org/act-now/urgent-details.aspx?Id=66>) Areas where the proposed regulations are lacking and need strengthening include: 1) chemical disclosure requirements; 2) reuse of flowback wastewater; 3) the broad self-policing approach afforded to industry; and 4) inadequate penalties for violations.

### **A. Chemical Disclosures**

Each supplier of fracking fluids offers a different combination of chemicals at different concentrations, and each well pad can use a unique combination of fracking fluids in extracting shale gas. Several states, including Pennsylvania, have recently required increased disclosure of chemicals used in the fracking fluid. PA DEP has posted on its website a list of 88 chemicals used in Pennsylvania fracking activities. (PA DEP Marcellus Shale Drilling Chemical List [http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new\\_forms/marcellus/Reports/Frac%20list%206-30-2010.pdf](http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/Reports/Frac%20list%206-30-2010.pdf) (last updated 6/30/2010).)

The Commission’s proposed regulations, however, miss the mark on disclosure of fracking chemicals. Under Section 7.5 of the proposed regulations, “Project sponsors must maintain a record of the volumes/amounts of all chemicals/additives used for each hydraulic fracturing event ... [these records] must be submitted to the Commission in the “DRBC Post Hydraulic Fracturing Report.” (Draft NGDR, §7.5(h)(2)(ii)(D).) The proposed regulations, however, include no provision for public access to this critical information, thus failing to provide adequate notice to the 15 million people who depend on the watershed concerning the chemicals that could possibly contaminate their water supply. Nor do the regulations require sponsors to provide any advance notice to the Commission or the public of the chemicals that are intended for use at each well.

The DRBC should strengthen its proposed chemical disclosure rules in at least two ways. First, the Commission’s rules should require that all Post-Hydraulic Fracturing Reports, within a reasonable time after their submission (but no later than 72 hours after submission), will be made available to the public both on the Commission’s website and in paper form for in-person review. Second, the Commission should require that drillers publicly disclose the specific chemicals they intend to use at each well at least 5 days in advance of their use. Through both of these simple changes, the public will have access to critical information that it needs to evaluate the ongoing safety of its water supply. The transparency and disclosures we urge would create an additional check on the drilling companies and provide further protection to the watershed and those who use and rely on it. Indeed, strong disclosure requirements could encourage project sponsors, as well as fracking fluid suppliers, to use safer substances in the fracking process going forward, thus limiting significant risks of contamination in the watershed.

### **B. Flowback Water**

The proposed regulations do not adequately address the treatment, reuse, or disposal of flowback water, the wastewater that returns to the surface after well stimulation activities are complete. Approximately 15-80 percent of the original frack fluid returns to the surface as flowback. (T.

Kenworthy & D. Weiss, “Drilling Down on Fracking Concerns: The Potential and Peril of Hydraulic Fracturing to Drill for Natural Gas,” March 21, 2011, at 5.) The flowback is often contaminated by subsurface contaminants including toxic organic compounds, heavy metals, and naturally occurring radioactive materials. (Id.) If improperly stored, transported, treated, or disposed, this toxic mixture poses a substantial hazardous threat to human health and the environment. In light of the expensive and not very effective options for the full treatment of flowback, many drilling companies have begun to reuse partially treated flowback in the extraction of shale gas from subsequent wells.

The Commission’s proposed regulations do not provide clear parameters for the reuse of flowback, thus exposing the watershed to an unnecessary risk of harm. Under the proposed regulations, the only requirements for reuse of flowback are that “flowback and production water may be used only as expressly approved by the docket or ABR” (Draft NGDR, §7.4 (g)(1)), and that approvals for recycling flowback will be “subject to conditions including but not limited to transport, sampling, and tracking requirements that are necessary in the view of the Commission to protect the water resources of the basin.” (Draft NGDR, §7.4 (g)(2)). As stated, the proposed regulations do not specify treatment parameters for the flowback prior to reuse, nor do they acknowledge that certain geographic areas may be too sensitive, due to proximity to waterways, for the reuse of flowback wastewater, because of the possibility of spills.

Lacking sufficient specificity, these proposed regulations do little more than acknowledge the reuse of flowback and suggest that the Commission has some plan in mind for conditioning any approval of flowback recycling. But the proposed rules offer no real parameters for the project sponsors or the public, and thus the transparency and reasonableness of the approval process remains murky. Moreover, the suggested approval process for reuse of flowback wastewater, as stated, leaves too much room for subjectivity in determining the boundaries of the project sponsor’s use of the flowback wastewater.

Because the lack of specificity in the Commission’s proposed rules for the reuse of flowback water runs the significant risk of exposing the watershed to unnecessary harms, the Commission should revise its proposed flowback reuse regulations to add more specific direction for industry, and more explicit notice to the public, as to the specific standards the Commission intends to apply to proposals for reuse of flowback. The Commission must revise these regulations to explain clearly to industry and to the public how this approval process will operate, what reuses are permissible in what locations, what numeric or non-numeric standards will form the basis for approval decisions, what rights the public will have to review reuse proposals and approvals, and what rights the public will have to appeal approvals concerning flowback reuse.

### **C. The Commission Cannot Rely on Industry Self-Policing to Ensure the Safety of the Watershed**

It is not reasonable, when EPA and DRBC impact studies remain incomplete, for the Commission’s proposed regulations to rely on a high level of self-policing on the part of project managers. The proposed hands-off approach will open the floodgates for undocumented violations, and continue to leave the watershed just as vulnerable to possible contamination as if there were no regulations at all.

Section 7.3 (m)(1) of the proposed regulations states: “The project sponsor must report in writing to the Commission any violation of these rules, ... or any circumstances that may reasonably lead to a finding of violation, within 48-hours of the occurrence or upon the project sponsor becoming aware of the violation or circumstance. In addition, the project sponsor must notify the Commission by telephone immediately upon learning of any violation, occurrence or condition that may cause a significant harm to water resources.” (Draft NGDR, § 7.3(m)(1).)

Section 7.3 (m)(2) provides: “If the monitoring required herein, or any other data or information demonstrates that the operation of this project significantly affects or interferes with any designated uses of ground or surface water, or if the project sponsor receives a complaint regarding this project, the project sponsor... must investigate such condition or complaint.” (Draft NGDR, § 7.3(m)(2).)

According to these proposed regulations, the Commission is relying upon project sponsors (i.e. the gas drilling industry) to self-inspect their own operations. They must: 1) report all of their own violations; 2) report complaints about their projects; 3) determine what conditions may cause a significant harm to water resources; and 4) investigate specific complaints against their own operations. The project sponsors must perform self-monitoring while still protecting their own business interests – an unhealthy recipe for conflict of interest and an unfriendly situation for the protection of public health and the environment.

Self regulation may be commonly thought of as a normal operating practice for the gas drilling industry. But because of the delicate nature and importance of the watershed, and because of the unprecedented risks that fracking and related activities present to this watershed, it is extraordinarily unwise for the Commission to assign such a great level of responsibility to project sponsors, especially in the absence of full and robust scientific studies that would support such a decision.

By following the self-policing approach and ceding this responsibility to the members of the gas drilling industry, the proposed regulations leave the door wide open for undocumented violations. The Commission’s approach is just like leaving the fox to guard the henhouse.

Take, for example, the case of Atlas Energy Inc. (Atlas) in Pennsylvania. (Atlas was acquired by Chevron Corp. in early 2011.) In 2009 an Atlas flowback wastewater pit overflowed and contaminated a high-quality watershed. (“DEP Fines Atlas Resources for Drilling Wastewater Spill in Washington County,” Aug. 17, 2010

<http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=13595&typeid=1>)

Atlas cleaned up the site upon discovery, but never reported the spill to PA DEP. (Id.) Roughly eight months elapsed before PA DEP learned of the violation and assessed the appropriate fines. (Id.) This sort of blatant disregard for existing self-reporting regulations is a risk that the Commission and the 15 million people who depend on the Delaware River Watershed cannot afford to take.

Experience has shown time and again that the enforcement of regulations and reporting of violations will never be a regulated industry’s top priority, particularly where it competes with bottom line profits in a highly competitive business sector. The reliance of the proposed

regulations on self-policing leaves the watershed vulnerable to the harms caused by poor industry practices. To strengthen enforcement of the regulations the DRBC should, at a minimum, require all violation reports to be public information and accessible online and in public libraries. The Commission should exercise its right of entry and inspection at permitted drilling project sites; those inspections should be frequent, randomly scheduled, and unannounced; and the results of each those inspections should be made public promptly. If this industry were left to police itself, the Delaware River Basin would be left in tatters, its waters unusable. The residents who depend on the Delaware River Basin deserve more from the Commission than a regulatory scheme that says “we trust you” to an industry that has not earned that trust. We urge the Commission to strengthen its draft regulations to ensure that the industry will face strict independent oversight. Make the industry prove that it deserves the public’s trust.

#### **D. Fines**

Even if project managers diligently self-reported violations as required by the proposed regulations, the penalties that are available under the proposed regulations are not significant enough to deter poor industry practices that may cause substantial harm to the watershed. The Commission must revise its proposed enforcement regulations to create a penalty regime that is based upon a current, reality-based understanding of the enormous costs of the environmental harms that fracking and related activities can cause in the watershed, on the one hand, and the deep pockets of industry (and thus, the enormous level of disincentive required to discourage violations) on the other hand.

Under Section 7.3(n)(3) “Any person who violates or attempts to violate these regulations shall be subject to the penalties as provided in Section 14.17 of the Compact.” Section 14.17 of the Compact states that fines shall not be less than \$50, nor more than \$1000, per violation. (Delaware River Basin Compact §14.17.) Section 14.17 was drafted fifty years ago, and the range of fines that was contemplated a half-century ago is assuredly not reflective of either a current understanding of the significance of environmental harms to the watershed or the current size and financial power of the gas drilling industry.

As an example, Cabot Oil and Gas Corporation reported a 2010 total annual net income of \$103.4 million. (See “Cabot Oil & Gas Corporation announces 2010 results, record production of over 130 Bcfe,”

[http://www.youroilandgasnews.com/cabot+oil+%26+gas+corporation+announces+2010+results,+record+production+of+over+130+bcfe\\_59794.html](http://www.youroilandgasnews.com/cabot+oil+%26+gas+corporation+announces+2010+results,+record+production+of+over+130+bcfe_59794.html)) For a company like Cabot, a maximum \$1000 fine per violation is less than a drop in the bucket. Even a total of one thousand violations at the maximum fine level (assuming Commission inspectors could write up the notices of violation fast enough) would amount in the aggregate to less than one percent of Cabot’s net profits for one year.

Even PA DEP’s fine structure has more teeth. Under Pennsylvania regulations, gas drillers can be subjected to a maximum initial fine of \$25,000, and an additional \$1,000 fine per day the violation continues. No less an authority than former PA DEP Secretary John Hanger has publicly stated that even those maximum fines are insufficient and ought to be increased. (See <http://johnhanger.blogspot.com/2011/03/scandalous-nyt-feb-27th-article-and.html>)



We urge the Commission to bring the Penalties section of the Draft Regulations, and the Compact, into the 21<sup>st</sup> Century, and (a) increase the lower end of the range of fines for violations of its Natural Gas Development Regulations to \$1,250 per violation, per day that the violation continues, and (b) increase the upper range of fines for violations of its Natural Gas Development Regulations to a maximum fine of at least \$25,000 per violation, per day that the violation continues. Purely technical violations can remain toward the lower end of the range of fines, but violations that result in measurable pollution, whether to air, ground, or Delaware River Basin waters, should always come in at the higher end of the range. If the Commission truly wants to protect the Delaware River Basin and encourage natural gas drillers to promote safe drilling practices, it must put real teeth into the penalties available under the proposed regulations.

#### **IV. The Commission Should Not Weaken the Aspects of Its Proposed Regulations That Fill the Gaps That Pennsylvania's Regulations Leave Behind**

There are several provisions of the proposed rules that would regulate the industry more stringently than Pennsylvania currently does. These areas include: 1) the \$125,000 bonding requirement for every well (Draft NGDR §7.3 (k)); 2) the minimum 500-foot well pad setback from water bodies, wetlands, surface water supply intake, and water supply reservoirs (Draft NGDR, §7.5 (b)(4) (i, ii, vi, vii)); 3) the refusal to grant variances to the restriction against locating well pads in a floodway (Draft NGDR, §7.5 (b) (9)(i)); and 4) the requirement for project managers to install monitoring wells where there are no existing groundwater wells or the project manager is unable to gain access to any existing well within 2,000 ft of the project well pad (Draft NGDR, §7.5 (h)(2)(i)(A)(1)). These provisions of DRBC's proposed rules correctly acknowledge the inadequacy of the current state regulatory scheme and the existing Commission regulations to properly safeguard the Delaware Watershed from possible harms attributable to drilling, fracking, and related activities, including the water extraction process. The Commission must not allow this comment process to serve as a vehicle for weakening these critical protections, particularly when Pennsylvania cannot be relied upon to increase the level of regulation and enforcement under its own state rules.

#### **V. Conclusion**

The current proposed regulations do not go far enough and do not fully reflect the reasoned and patient, science-based approach needed to ensure the protection of the watershed. As such these proposed regulations fail to protect the watershed adequately from the irreversible harms that could result from fracking and related activities. The health and wellness of the 15 million people who depend on the waters of the Delaware River Basin hinge on the DRBC's actions. We urge the Commission to wait for the science to come in and then let the science drive the regulations. Do not allow purely economic pressures to dictate DRBC policy. We further urge the Commission to fill the regulatory gaps and strengthen the regulatory weaknesses we have identified, and in particular to ensure that the penalties available under the regulations will fit the crimes.

Respectfully submitted,

/s/

Adam H. Cutler  
Jaimee Moore

For the Public Interest Law Center of Philadelphia