

ALL COMPANIES INVOLVED IN HYDRAULIC FRACTURING OPERATIONS FACE SIGNIFICANT RISKS

Onshore “unconventional” natural gas production often requires hydraulic fracturing, which typically injects a mix of millions of gallons of water, thousands of gallons of chemicals, and particles deep underground to create fractures through which gas can flow for collection. The potential impacts of this process derive from activities above and below the ground that are a necessary part of the life cycle of operations related to fracturing, including assuring the integrity of well construction and moving, storing, and disposing of significant quantities of water and toxic chemicals. These activities have been linked to environmental impacts that could have significant financial implications for the companies involved, and are contributing to increased regulatory scrutiny.

ENVIRONMENTAL IMPACTS COULD POSE FINANCIAL RISKS

- In April 2010, in an effort to protect the residents of Dimock Township from gas migration from company wells, Pennsylvania ordered Cabot Oil & Gas to pay a \$240,000 fine, install water treatment systems in 14 homes where drinking water was contaminated and barred the company from drilling any new wells in the township for a year.¹
- In June 2010, a blowout at an EOG well reportedly spewed gas and wastewater for 16 hours and was described by the Pennsylvania DEP as an event that posed “a serious threat to life and property.”² In response, the company was forced to shut down its operations in Pennsylvania for 40 days and pay \$353,400 in fines.³
- In August 2010, the Pennsylvania DEP fined Atlas Resources over \$97,000 “for allowing used hydraulic fracturing fluids to overflow a wastewater pit and contaminate a high-quality watershed.”⁴

FINANCIAL RISK DUE TO POTENTIAL NEW FEDERAL REGULATION MAY REACH THE ENTIRE INDUSTRY

- **Federal legislation:** In June 2009 legislation that would reinstate the EPA’s authority to regulate fracturing was introduced in the U.S. House and Senate, though the 2010 congressional elections likely will affect the prospects for federal action.⁵
- **Environmental Protection Agency (EPA) Review:** In 2009, Congress requested that the EPA carry out a study on the “relationship between hydraulic fracturing and drinking water” and the Agency’s Science Advisory Board encouraged the use of a “life cycle approach.” As part of this study, the agency sent formal inquiry letters to nine of the leading service providers seeking detailed information on the chemicals and water used and produced in fracturing operations. While the letter from the EPA does allow companies to protect portions of their submissions as confidential business information, if the company does not claim such protections, the information will be made available to the public.
- **Congressional Committee Review:** In February 2010, and May 2010 the U.S House Subcommittee on Energy and the Environment sent letters to a total of 14 companies involved in hydraulic fracturing asking for increased disclosure on the chemicals used in the fracturing process and its potential impacts on human health or the environment. In July 2010, it sent letters to ten oil and gas producers to obtain information and according to the committee, “[t]his investigation will help us better understand the potential risks this technology poses to drinking water supplies and the environment, and whether Congress needs to act to minimize those risks.”⁶
- **Materiality of regulatory risk:** In 10-K reports filed at the SEC, some companies in this sector have begun to disclose that increased regulation could pose material risks such as increased costs or could otherwise impact operations.

FINANCIAL RISK DUE TO POTENTIAL NEW STATE-LEVEL REGULATION MAY REACH THE ENTIRE INDUSTRY

ARKANSAS:

- **State-legislative action:** In early November 2010, the state Oil and Gas Commission was in the final stages of developing a rule that would require companies to disclose the names and concentrations of the chemicals used in the fracturing process and would make the information accessible on its website. The rule would also require certain well casing protocols to reduce risk. A final vote on the rule is expected in December.⁷

NEW YORK:

- **Regulatory action:** New York State is revising its guidelines related to hydraulic fracturing and vocal and politically well connected support for increased protections has emerged.

¹ Commonwealth of Pennsylvania, Department of Environmental Protection media release, “DEP Takes Aggressive Action Against Cabot Oil & Gas Corp to Enforce Environmental Laws Protect Public in Susquehanna County,” April 15, 2010.

² Pennsylvania Department of Environmental Protection media release, “DEP Orders EOG Resources to Halt All Natural Gas Drilling Activities in PA,” June 7, 2010.

³ Commonwealth of Pennsylvania, Department of Environmental Protection media release, “Independent Report Faults Clearfield County Gas Well Operators for June 3 Blowout DEP Outlines Proper Procedures for All Marcellus Drilling Firms,” July 13, 2010.

⁴ Pennsylvania Department of Environmental Protection Southwest Regional Office media release, “PA DEP Fines Atlas Resources For Drilling Wastewater Spill in Washington County,” August 17, 2010.

⁵ Senator Robert Casey Jr., “Statement for the Record, Introduction of the Fracturing Responsibility and Awareness of Chemicals (FRAC) Act,” June 9, 2009.

⁶ Committee on Energy and the Environment, “Energy & Commerce Committee Investigates Potential Impacts of Hydraulic Fracturing,” February 18, 2010, updated July 19, 2010, accessed: September 23, 2010.

⁷ “Arkansas Board Set to Create Rule on Fracking,” *The Associated Press*, published on chron.com (the website of the *Houston Chronicle*), October 30, 2010.

- In December 2009, the EPA weighed in on the draft rules, expressed significant concerns about protecting New York City's watershed, and signaled the need for further study of "issues involving water supply, water quality, wastewater treatment operations, local and regional air quality, management of naturally occurring radioactive materials disturbed during drilling, cumulative environmental impacts, and the New York City watershed."⁸
- In December 2009, New York City announced its study found hydraulic fracturing posed "an unacceptable threat to the unfiltered, freshwater supply of nine million New Yorkers, and cannot safely be permitted within the New York City watershed" and, therefore, the draft rules are insufficient.⁹
- **Impact on companies:** In late October 2009, in the face of the massive public controversy about its plans to engage in drilling and hydraulic fracturing near the New York City watershed, Chesapeake Energy, reportedly the only company to hold leases within that watershed, announced it would "voluntarily" refrain from drilling within the boundary.¹⁰

PENNSYLVANIA:

- **State-legislative action:** State legislators are debating revisions to the state's existing regulatory regime, which may include a severance tax, though the 2010 mid-term elections will likely impact state action on the issue.¹¹
- **Regulatory action:** The Delaware River Basin Commission—a state and federal hybrid regulatory agency— imposed a moratorium on drilling in the Marcellus while it revises its regulations limiting development in Pennsylvania. The regulations have been delayed but are expected in November or December 2010 and according to some reports, could be the strictest in the country.¹²
- **Impact on companies:** According to media reports, two companies operating in the region affected by the moratorium had "put their lease contracts on hold, citing a 'force majeure' clause that allows such suspensions because of regulation outside the 'normal and ordinary course of business.'"¹³ According to other media reports the companies had invested more than \$100 million into the leases before putting them on hold.¹⁴

WYOMING:

- **State-level action:** In June, the Wyoming Oil and Gas Conservation Commission passed new rules requiring companies to disclose the chemicals used in the fracturing process. In September, Wyoming's governor clarified that the ingredients will be made public, making it the first state to require this level of public disclosure of the chemicals used in the fracturing process.

LITIGATION IS INCREASING, WHICH COULD RESULT IN INCREASED FINANCIAL AND REPUTATIONAL RISK

- EnCana reportedly paid a multi-million dollar settlement to a woman who alleged her drinking water had been contaminated by the company's operations in Colorado.¹⁵
- Cabot Oil & Gas, Atlas Energy Inc., and Chesapeake Energy face lawsuits over alleged water contamination in Pennsylvania.¹⁶
- In September 2010, 13 families in Pennsylvania sued Southwestern Energy alleging that their drinking water was contaminated by the company's drilling operations.¹⁷

SHAREHOLDERS LACK THE INFORMATION NEEDED TO FULLY ASSESS RISK TO THE SECTOR AND DIFFERENTIATE AMONG INDIVIDUAL COMPANIES

- Investment value may be undermined by company decision-making and policies that lag public and regulatory expectations for environmental protection.
- In the absence of meaningful disclosure, investors cannot differentiate risks and rewards at various companies.
- Regulatory and litigation developments indicate that companies that are reliant on fracturing operations face an uncertain regulatory environment and increased expectations around disclosure. Investors contend that companies involved in hydraulic fracturing must be more transparent regarding how each is responding to the potential of regulatory restrictions, including providing more detailed information publicly on all of the chemicals used in the fracturing process and steps being taken to reduce risks.

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⁸ John Filippelli, "Comments on the New York State Department of Environmental Conservation September 2009 draft SGEIS for the Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs," Environmental Protection Agency Region 2, December 30, 2009.

⁹ Steven W. Lawitts, Acting Commissioner, New York City Department of Environmental Protection, Comments on the Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program, December 22, 2009.

¹⁰ Jad Mouawad and Clifford Krauss, "Gas Company Won't Drill in New York Watershed," *The New York Times*, October 27, 2009.

¹¹ "Gov. Rendel in Pittsburg Region, Talking Marcellus Shale," *The PittsburghChanel.com*, September 7, 2010.

¹² "Natural Gas Drilling in the Delaware River Basin," Delaware River Basin Commission website, accessed: September 23, 2010; Mike Soraghan, "Obscure Regulator Hits Brakes on Northeast Shale Drilling Rush," *Greenwire* reported in the *New York Times*, September 13, 2010.

¹³ Mike Soraghan, "Obscure Regulator Hits Brakes on Northeast Shale Drilling Rush," *Greenwire* reported in *The New York Times*, September 13, 2010.

¹⁴ Andrew Maykuth, "Marcellus Shale Dispute Bubbling Up in Northeast Pennsylvania," *The Philadelphia Inquirer*, July 4, 2010.

¹⁵ Abraham Lustgarten, "Drilling Process Cause Water Supply Alarm," *The Denver Post* (originally posted in ProPublica), November 17, 2008.

¹⁶ Michael Rubinkam, "Pennsylvania Residents Sue Gas Driller Over Polluted Wells," *The Associated Press*, November 20, 2009; Joh Hurdle, "Pennsylvania Lawsuit Says Drilling Polluted Water," *Reuters*, November 9, 2009; "Pa. woman sues gas driller, claims water tainted," *The Associated Press*, October 29, 2010.

¹⁷ Jim Efstathiou Jr., "Pennsylvania Families Sue Southwestern Energy on Shale Drilling," *Bloomberg*, September 15, 2010.