EXXON MOBIL CORP
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Shareholder Rebuttal to the ExxonMobil Opposition Statement
Regarding Hydraulic Fracturing Risks

240.14a-103 Notice of Exempt Solicitation
U.S. Securities and Exchange Commission, Washington DC 20549

NAME OF REGISTRANT: ExxonMobil
NAME OF PERSON RELYING ON EXEMPTION: As You Sow Foundation
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Written materials are submitted pursuant to Rule 14a-6(g)(1) promulgated under the Securities Exchange Act of 1934. Submission is not required of this filer under the terms of the Rule, but is made voluntarily in the interest of public disclosure and consideration of these important issues.

Proposal # 8—Report on Hydraulic Fracturing

A proposal filed by As You Sow on behalf of the Park Foundation, and the Missionary Oblates of Mary Immaculate; the Unitarian Universalist Service Committee; the Benedictine Sisters, Boerne, Texas; The Brainerd Foundation; Zevin Asset Management LLC on behalf of The John Maher Trust; First Affirmative Financial Network LLC on behalf of Izetta Smith; and Benedictine Sisters of Mount St. Scholastica; is centered on two concepts essential to investor confidence: disclosure and the mitigation of risks.

Shareholders are being asked to vote FOR a report on the short-term and long-term risks to ExxonMobil's operations, finances and gas exploration associated with community concerns, known regulatory impacts, moratoriums, and public opposition to hydraulic fracturing and related natural gas development. Such a report should contain, at a minimum, with regard to hydraulic fracturing and related infrastructure: any substantial community opposition to the company's maintenance or expansion of particular operations, such as permitting and drilling; government enforcement actions, including allegations of violations; total aggregate government fines on an annual basis; facility shutdown orders, license suspensions or moratoriums on licensing, exploration or operations; any limitations which regional water supply or waste disposal issues may place on operations or expansion.

Note: ExxonMobil submitted a No Action letter to the SEC to omit this resolution based on the grounds that it was substantially implemented. On March 22, 2012 the SEC replied:
"Based on the information you have presented, it does not appear that ExxonMobil's public disclosures compare favorably with the guidelines of the proposal. Accordingly, we do not believe that ExxonMobil may omit the proposal from its proxy materials in reliance on rule 14a-8(i)(10)."
http://www.sec.gov/divisions/corpfin/cf-noaction/14a-8.shtml

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1. EXECUTIVE SUMMARY

- Hydraulic fracturing and its related operations above and below the ground have been linked to significant environmental, social, and health impacts that not only could have financial implications for the company but are also leading to increased community opposition and regulatory scrutiny which could have significant business implications.
- ExxonMobil provides little disclosure of the risks from community concerns, moratoriums, and public impacts despite media reports indicating that Exxon has been exposed to such risks and is likely to be exposed to more. Furthermore, there is wide spread evidence that bans, moratoriums, and public opposition have resulted in financial impacts that are being felt industry wide.
- ExxonMobil's opposition statement and web site fails to acknowledge the industry-wide environmental impacts from hydraulic fracturing and its related operations and the chemical toxicity of fracking fluids.
- ExxonMobil has failed to provide little if any information on fines and enforcement actions despite having nearly 200 alleged violations in the last two years in Pennsylvania. The Company has the highest rate of alleged violations per well in the Pennsylvania Marcellus Shale between 2008 and 2011.
- ExxonMobil misrepresents its leadership role in recycling efforts and fails to address the impacts on its operations from decreasing water supply and waste disposal.
- ExxonMobil misrepresents the regulatory landscape and fails to assess the rapidly changing framework at state and federal levels.
- Currently ExxonMobil is not providing investors the necessary information to determine if it is successfully managing the associated risks (see Table 1).

Rationale for a Yes vote:

1. Exxon's disclosure does not adequately communicate the scope and breadth of community opposition that affect ExxonMobil oil and gas leases nor the operational and financial implications for shareholders.
2. ExxonMobil's shareholders face significant financial risks due to tightening state and federal regulations on which the Company provides minimal disclosure.

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3. Exxon does not adequately convey how it is currently handing its water quality challenges including waste disposal issues, and does not capture the enormity of water supply limitations facing the industry and in particular the impacts and risks posed to the Company.

Table 1. Analysis of ExxonMobil's Existing Reporting Against the Guidelines of the Proposal

Topic Requested in Proposal	XOM Reporting	XOM Omissions
Risk from any substantial community opposition or concerns	Company reports on some community opposition	Company omits many other opposition incidents and contexts relevant to facilities and operations
Government enforcement actions including allegations of violations	Company asserts no violations from "hydraulic fracturing" while omitting array of violations related to natural gas development	Fails to address enforcement in areas targeted by Proposal which refers to "hydraulic fracturing and related natural gas development." It also refers to "related infrastructure." Extensive notices of violation identified in Pennsylvania; unknown in other states
Total aggregate government fines on an annual basis	Limited disclosure of penalties	No aggregate disclosure of penalties
Facility shutdown orders, license suspensions or moratoriums on licensing, exploration, or operations	Company mentions impacts in a single town where it had material problems, and lists some moratoriums in one speech published online	Company fails to provide analysis of impact of numerous U.S. local, state, and international movement to ban or place moratoriums, including those impact areas of large holdings such as Marcellus Shale. Company's rational for limited disclosure that other opposition "is not material to its investors because the opposition does not impede the Company's overall business" is inconsistent with the trust and guidelines of the proposal, which seeks a profile of any substantial impacts and risks to facilities, exploration and

		operations regardless of whether they currently pose a material risk to the overall business.
Communities where opposition is anticipated	None identified	No reporting on this topic
Financial or operational risks to particular operations, facilities and plans from proposed federal or state laws or regulations, including moratoriums	Generic disclosure of regulatory risk	Impact of numerous impending regulatory programs and of various moratoriums is not analyzed
Any limitations from regional water supply or waste disposal issues on operations or expansion	Company reports on water recycling measures in one area	Company misrepresents extent of recycling efforts overall (i.e. lowest recycling rate in Marcellus Shale). It fails to address limitations regarding water and waste entirely. Significant limitations omitted in Texas and elsewhere. No disclosure of waste related limitations.

SUMMARY: The Company has failed to report consistent with the thrust and guidelines of the Proposal.

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2. INTRODUCTION

ExxonMobil explores for and produces natural gas under its own name as well as the names of various subsidiaries such as XTO Energy ("XTO").1 In Pennsylvania, Phillips Exploration is owned by Texas-based XTO Energy, which is owned by Exxon Mobil.2 ExxonMobil's oil and gas properties are located in 15 states. In the past few years, the Company has focused much of its expansion and drilling efforts in unconventional shale gas and shale oil plays. According to the company, it holds "a strong U.S. unconventional acreage position with 4.8 million net acres in our portfolio."3

ExxonMobil's opposition statement says that "the Board believes the Company has effectively communicated information on these issues, and, therefore, an additional report is not necessary."

Proponent response: Current disclosure does not provide investors with sufficient information on the potential significant risks to company returns from hydraulic fracturing operations. The Company draws attention to its 2010 Corporate Citizenship Report and its website www.aboutnaturalgas.com as evidence of its disclosure, but neither addresses the risks raised by the Proponent in this proxy.

At a November 2010 forum, Sherri Stuewer, ExxonMobil Vice President for Environmental Policy and Planning, said, "We have been working through several industry associations to design a system that provides regulators, first responders and the public with the information they desire." She said industry operational standards, such as ones developed by the American Petroleum Institute, have been an important part of improving the safety of fracking, "but they are not sufficient because they don't necessarily address community concerns."4

There are an ever increasing number of communities in the United States and abroad that have mobilized to protest and oppose permits for ExxonMobil wells, and have also successfully obtained bans or moratoriums that affect ExxonMobil oil and gas leases.

3. FINANCIAL RISK DUE TO COMMUNITY CONCERNS, BANS, MORATORIUMS, AND PUBLIC OPPOSITION TO HYDRAULIC FRACTURING AND RELATED NATURAL GAS DEVELOPMENT.

ExxonMobil's opposition statement and public information fails to provide little if any information on the resolution's request regarding risk from community concerns, bans, moratoriums, and public opposition.

Proponent response:
As the use of hydraulic fracturing skyrockets, communities, regulators and investors are growing increasingly concerned about the environmental, social, and health impacts of this process. There have been numerous incidents of public opposition directed at Exxon (see appendix 1). According to an MSCI report:
"the expansion of oil and gas activities into areas previously untouched by the industry will continue to face fierce opposition from the community, unless companies adequately manage environmental impacts and community health concerns through communication and adoption of best environmental practices."5

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Impact of Bans and Moratoria
Bans and moratoria clearly have had implications on business prospects for ExxonMobil and other companies but, given ExxonMobil's current levels of disclosure, it is impossible for investors to evaluate such risks for our company.

Texas: The Company's No Action letter (rejected by the SEC) states that its website contains a discussion about opposition to hydraulic fracturing.9 This discussion consists of a website link to a speech by Jack Williams, President of XTO Energy (the ExxonMobil subsidiary) at the Society for Petroleum Engineer's Conference in Houston, Texas in June 2011. In the speech, Williams' only comment regarding moratoriums was:

It has become commonplace to see press articles stating that another city, state, province or country has either placed a moratorium on hydraulic fracturing or banned it: New York state, Pittsburgh, Quebec, France, Germany, and South Africa to name a few.

In April, XTO experienced our own setback in the city of Southlake, TX. Our plan was to develop three sites in the area and connect them with one pipeline. We presented our plan, along with data on the economic benefits the project would provide to the city.

The opposition, though, proved that fear-based propaganda could win over the City. Two of the well sites were denied, making the project economically unfeasible. And more than 5,200 lessors won't receive royalties. The City now has a temporary moratorium on the issuance of new permits.6

Southlake
While Williams mentions the effect of one moratorium (Southlake, TX) on Exxon operations, his comments do not address the financial implication of this moratorium on the Company. Although stating that "more than 5,200 lessors won't receive royalties," Williams fails to mention how much money ExxonMobil invested in those leases, and does not disclose the lost revenue to ExxonMobil and its shareholders because those wells will not produce gas.

There is a cost to ExxonMobil when this occurs. Typically, gas companies sign leases with a 3 to 5 year term. If production does not begin before the term is up, the companies can not drill without signing a new lease, which adds extra costs (and lowers the company's return on investment). ExxonMobil has not publicly disclosed the financial losses that have accrued to the Company when it fails to obtain permits to drill, and either loses leases altogether, or decides to sign new leases to keep the rights to drill for gas.

According to the Star-Telegram, some XTO lease offers in Southlake were reported to range from $5,000 to as much as $18,500 per acre.7 It is not clear how many acres XTO had leased in Southlake but the Dallas Morning News reported that "The anti-drilling movement is beginning to have an effect on the natural gas industry, which has had to slow down and even cancel some projects. XTO Energy halted plans to drill in Southlake, and after paying millions of dollars to lease city land, now must wait for Dallas to rewrite drilling ordinances."8

Additionally, nowhere in its literature does ExxonMobil discuss the fact that moratoriums often result in the development of more stringent local regulations. The Southlake oil and gas ordinance that was created during the nearly one year moratorium period requires a 1,000-foot setback from habitable structures and from the property line of schools and hospitals, prohibits earthen drilling pits, requires low toxicity drilling fluids, bans fracturing fluid waste ponds within city limits, bans drilling in environmentally sensitive areas,9 and the ordinance was later amended to prohibit hydraulic fracturing during the summer months.10

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Exxon's No Action letter states that "The Company will further disclose any future community opposition or anticipated community opposition that it believes to be material to its investors. The Company has determined that the opposition it currently experiences or anticipates is not material to its investors because the opposition does not impede the Company's overall business."

Yet other than the South Lake example, Exxon does not reveal that there are an ever increasing number of communities (and even state agencies) in the United States and abroad that have mobilized to protest and oppose permits for Exxon wells, and have also successfully obtained bans or moratoriums that affect Exxon oil and gas leases.

Dallas
In 2008, XTO and Trinity East Energy leased land from the City of Dallas for $34 million. Almost two years later, XTO requested permits to drill several wells at Hensley Field - city owned property in west Dallas. In response to lobbying by neighborhood groups, Dallas suspended issuing drilling permits to XTO Energy and Trinity East,11 and formed a Drilling Task Force.12 The Task Force is in the process of developing recommendations on oil and gas regulations, which will then be approved or changed by Dallas City Council. According to an oil and gas industry attorney, one of recommendations developed by the Task Force, a 300-foot setback stipulation, would rule out all but a dozen or so sites pending city zoning approval, including planned sites at Hensley Field.13

New York: Exxon holds a significant number of gas leases in New York State. According to the Deposit Coalition, the 500-member coalition leased 45,000 acres to XTO Energy for $110 million in 2008. More than 80 percent of the XTO leases with the coalition are under the regulatory jurisdiction of the Delaware River Basin Commission (DRBC), and 15 percent are in the New York City Watershed.14 (In 2009, public opposition to hydraulic fracturing near the New York City watershed forced Chesapeake Energy to "voluntarily" refrain from drilling within the boundary.15)

New York State
There has been widespread opposition to gas drilling in New York State. A lawyer representing gas companies states that "Industry estimates that when you look at the cumulative effect of prohibitions and setbacks, 40 to 60 percent of their leasehold is effectively undevelopable."16

- On August 3, 2010, the New York State Senate passed a measure to ban hydraulic fracturing in deep, horizontal gas wells until the state's Department of Environmental Conservation (DEC) had more time to finish its review of the potential impacts of shale gas drilling, and develop new permitting guidelines.17
- Draft regulations were issued in September 2011 and the public comment period closed in January 2012, after an "unprecedented turnout" at hearings; final rules are expected soon.18 In November 2011, public hearings drew 6,000 attendees and standing room only crowds both upstate and downstate. Drilling opponents visibly outnumbered supporters at the Sullivan County and NYC hearings, and The Wall Street Journal reported that opponents outnumbered supporters by 4 to 1 at a large hearing in Binghamton.19 While these particular protests and meetings were not directed solely at ExxonMobil, the ramification of public pressure exerted on the DEC, for example, to ban drilling in New York City's watershed, may have significant effect on ExxonMobil's plans to develop wells on leases that it has already purchased in New York State.

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- While regulations are winding through the state process, more than 100 cities, towns and counties in New York have enacted various rules and restrictions, and in some cases bans.20 In February 2012, the New York State Supreme Court affirmed that local governments had the authority to prohibit natural gas drilling within their borders.21

The Delaware River Basin Commission (DRBC)

The DRBC - a hybrid state/federal hybrid regulatory agency that includes the U.S. Army Corps of Engineers and the governors of New York, Pennsylvania, Delaware and New Jersey — imposed a moratorium on drilling in the Marcellus Shale while it revises its regulations limiting development in Pennsylvania. The commission was expected to come to a decision before the end of 2011 but that decision has been delayed and as of the time of this memo, there was no updated timeline for finalization.

- In 2011, XTO applied to the DRBC for a permit to withdraw 250,000 gallons of water per day from Oquaga Creek in Broome County. At the time, Energy in Depth wrote about the importance of this water source to XTO: "This proposed withdrawal must be approved now to make it possible for XTO to make timely application later for natural gas development once regulations applying to that activity have been enacted. Such applications will require approved water sources."22 But in December 2011 the DRBC decided it would not approve XTO's application or any other water withdrawals for natural gas until New York Department of Environmental Conservation completed its environmental review of its drilling regulations.23

- Even if the DEC decides to permit high-volume hydraulic fracturing in the state, it's not clear that XTO will be able to develop its Deposit Coalition leases that are in the Delaware River Basin. In May 2011, the New York Attorney General sued the federal government for failing to fully consider the impacts of natural gas drilling in the Delaware Basin on the drinking water supplies of 9 million New York residents. Some of the concerns outlined by the suit include that hydraulic fracturing could contaminate water supplies with radioactive materials, heavy metals, methane, and other chemicals, and specifically mentions that XTO's application to withdraw water for natural gas exploration could harm Oquaga Creek, "a stream known for excellent trout fishing, within Broome County, New York."24 The suit also asks the government to pass regulations to ban natural gas development in the part of the river basin that includes New York City's watershed. If this lawsuit is successful, it could further delay development of XTO leases located in the Delaware River Basin, and prevent the Company from ever drilling on its leases located within the New York City watershed.

- Even if the lawsuit is unsuccessful, it is possible that XTO still might be prevented from drilling gas wells on leases it holds in the New York City watershed, because the DEC has recommended prohibiting it in the New York City and Skaneateles Lake watersheds. This recommendation was based on DEC's conclusions that "high-volume hydraulic fracturing poses the risk of causing significant adverse impacts to these irreplaceable water supplies."25

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Pennsylvania: In Pennsylvania over 100 municipalities in the state, including Pittsburgh enacted ordinances to restrict or limit hydraulic fracturing operations between March 2010 and September 2011.26

Germany: Exxon holds six shale gas exploration licenses in Germany, covering 3.2 million acres. The Company has reportedly already invested $100 million to drill five exploratory wells in Lower Saxony and one in North Rhine-Westphalia.27

- In March 2011, North Rhine-Westphalia's state government imposed a moratorium on shale gas drilling in March following pressure from environmental activists. In the Lower Saxony town of Lünne, there have been protests against ExxonMobil's use of hydraulic fracturing and calls for a moratorium on drilling activities there, too. Lünne's mayor, Franz Schoppe, has responded to the protests insisting there must be a thorough review of the shale gas extraction process."28 On the national level, following large-scale protests against ExxonMobil's shale gas pilot projects in North Rhine-Westphalia and Lower Saxony Environment Minister Norbert Röttgen ordered a review into the environmental impact of shale gas production in Germany.29 In May 2012 both Environment Minister Röttgen and Economy Minister Philipp Rösler stated their opposition to any fracking.30

Other local, state, regional, and international bans and moratoriums include:

- Local actions: Resolutions or ordinances to ban or impose moratoriums on gas drilling and hydraulic fracturing in communities have been passed in nearly 200 towns and counties in 13 states across the country.31
- Maryland: In June 2011, the state announced it would conduct a comprehensive study on the implications of natural gas drilling. Permits will not be approved before the completion of the study in 2014.
- New Jersey: The state has a one-year ban on drilling, though this action is largely symbolic since there are not significant quantities of gas in New Jersey, yet it is a voting member of the Delaware River Basin Commission discussed above.32
- Vermont: In May 2012 the state legislature voted to become the first state to ban fracking and also bans drilling companies from disposing waste in Vermont from fracking operations out of state. Governor Peter Shumlin has said he supports the measure, and has indicated he will sign it.33
- Canada: In March 2011, the Province of Quebec instituted a de facto ban on hydraulic fracturing pending review by a committee appointed by the Province's Environmental Minister to determine if shale gas could be extracted in the region without impacting the environment. In April 2012, the committee recommended that the minister should not allow hydraulic fracturing even for research purposes.34
- France: The country has a nationwide ban in place due to potential environmental impacts. In October, President Sarkozy stated that "Development of hydrocarbon resources underground is strategic for our country but not at any price. This won't be done until it has been shown that technologies used for development respect the environment…"35
- Bulgaria: In January 2012, Bulgaria banned hydraulic fracturing and suspended Chevron's license to explore for shale gas in the country.36

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It is highly likely that a number of these moratoriums and the resulting tougher regulations will directly impact ExxonMobil investments, but no details on how the Company might be affected are provided in any of ExxonMobil's disclosure documents.

4. SHORT-TERM AND LONG-TERM RISKS TO OPERATIONS, FINANCES AND GAS EXPLORATION ASSOCIATED WITH COMMUNITY CONCERNS AND KNOWN REGULATORY IMPACTS

Regulatory Risk
Exxon's opposition statement says "We believe that state-level oversight of oil and gas operations, including hydraulic fracturing, can be appropriate and effective in protecting human health and the environment while accounting for local geology and other local factors"

Proponent response: The proponents contend that the above statement 1) misrepresents the current level and effectiveness of state regulations, and 2) fails to recognize the rapidly shifting regulatory environment on both the state and federal level which can have significant financial implications for companies engaged in hydraulic fracturing. Information on regulatory impacts is one of the primary requests of the resolution. ExxonMobil provides only generic information in its 2011 10-K regarding regulatory risk.

A. Shifting Regulatory Framework At State And Federal Levels

State regulation:

State-level regulation is spotty and inconsistent and as a result, investors do not have confidence it is sufficient to protect shareholder value.

The US Department of Energy reports:37

- 21 of 31 drilling states surveyed have no regulations specific to hydraulic fracturing,
- 4 of 31 drilling states surveyed have detailed regulations guiding hydraulic fracturing,
- 10 drilling states surveyed require that fracturing chemicals be disclosed, and
- No states surveyed require that the volume of fluid left underground after fracturing be recorded.

Shifting regulatory framework at state level

The fact that so few states have regulations raises the question of how effectively states protect "human health and the environment." Yet in the last couple of years, several state regulatory agencies have responded to public pressure and enacted new regulations – these new initiatives pose financial impacts on natural gas drilling which are unexamined in ExxonMobil's public information.

Multi-state:
Several states are increasing regulations on hydraulic fracturing chemical disclosure rules. These include Colorado, Wyoming, Pennsylvania, Texas, Arkansas, Louisiana, Texas, and Montana – all of which are home to ExxonMobil natural gas operations.38

Besides chemical disclosure (see page 15), other efforts to strengthen state regulations relate to a variety of oil and gas requirements for casing, cementing, pit construction, air permitting, wastewater discharge, water quality, and water

scarcity. Some of these are discussed below to show that state regulations have the potential to affect ExxonMobil's operations.

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Pennsylvania

- Impact Fees: In February 2012, Pennsylvania passed a bill imposing an impact fee on gas drilling companies to help cover the cost of fixing bridges and water and sewer plants, among other projects.39
- Increased fines: The 2012 bill also tripled maximum civil penalties for unconventional gas wells to $75,000 plus $5,000 for each day (increased from $1,000) during which the violation continues. 40
- In 2009, XTO drilling in the floodplain of a waterway, and subsequent flooding of that area, led the DEP to announce in 2011 that it would change its regulations and “no longer offer expedited review of permit applications for projects that have the potential to discharge sediment and runoff to exceptional-value or high-quality watersheds, have well pads that lie within floodplains or would take place on contaminated lands.”41
- Pennsylvania imposed more stringent standards for total dissolved solids meaning that companies are no longer able to dispose of the millions of gallons of waste water produced in fracturing operations at water treatment plants that discharge into rivers and streams.42 This raises serious questions as to how companies like ExxonMobil, will dispose of wastewater.
- Insufficient capacity for wastewater disposal could potentially limit the development of fracking, especially in Pennsylvania which has few disposal wells. Of the almost 22 million gallons of wastewater that Pennsylvania’s Marcellus shale operators sent to disposal wells in the first six months of 2011, nearly 99 percent went to Ohio.43 ExxonMobil’s disclosure documents did not mention the potential financial risks to the company if it is required to find alternative sites for its brine and fracturing fluid wastes.

Ohio

- In January 2012, the Ohio Department of Natural Resources (ODNR) said it will not approve any additional brine-injection well permits until it completes an injection-well report including new depth regulations. Other recent ODNR regulations or restrictions on brine-injection wells include: a ban on brine-injection wells to within a seven-mile radius of a well on Youngstown's West Side, near the epicenter of 11 earthquakes last year; that injection wells will not be allowed to exceed 8,000 feet in depth; and injection wells can no longer be drilled into the Precambrian, or bedrock, formation, where injection wells could trigger seismic activity.44 Citizen and regulatory efforts are now being made to prevent Ohio from becoming a dumping ground. 45
- In February 2012, Republican Attorney General Mike DeWine said that Ohio's laws are not adequate to protect residents and the environment. He recommended three changes: 1) increase maximum level for civil penalties, 2) require full disclosure of the chemicals and their concentrations used in hydraulic fracturing; and 3) allow a state agency to intervene in homeowner complaints over drilling lease agreements.46

Louisiana

- In 2010 the state regulated surface water withdrawals in response to the shale-gas drilling boom in that state and because industry’s "unprecedented use of enormous amounts of water" was creating the "potential for chaos and conflicts." The law places commercial and industrial uses such as oil and gas development as a third priority, after human consumption via a public water system or well, and agricultural uses.47

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- ExxonMobil has 240,000 acres of minerals leased in the Haynesville Shale gas play, which is located in Louisiana and East Texas. The company reports that in 2010 it produced 250 million cubic feet of gas from Haynesville shale wells. According to the Louisiana Department of Natural Resources, XTO has 14 wells that were completed in 2010 and 2011 and are producing gas, and 18 other wells that have been permitted or drilled but are not yet producing gas.48

Texas

- Texas is suffering its worst drought on record which is leading to increased community concern, conflict between natural gas drilling and other water users, and regulatory efforts at a local level as described below (page 14).

Federal regulation

ExxonMobil provides little to no information on the current status of federal regulations and proposed federal rules that may affect the Company's natural gas operations. Hydraulic fracturing is in fact largely exempt from seven major federal environmental laws including:

- The Safe Drinking Water Act - designed to protect drinking water sources including above ground and below ground water. In most cases, the EPA regulates chemicals used in underground injection; however the 2005 Energy Policy Act stripped the EPA of its authority to monitor hydraulic fracturing (with the exception of the use of diesel in fracking fluids). The New York Times dubbed this the "Halliburton loophole," alleging that then Vice President Dick Cheney, formerly CEO of Halliburton (the largest maker of fracking fluid), shepherded this provision through Congress.49
- The Clean Water Act - regulates the release of pollutants into waterways. Amendments exempted oil and gas production from storm water runoff permits and redefined sediment as a non-pollutant. Consequently, sediment run-off from well and infrastructure construction and operation into streams and rivers are not covered by the Act.
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as the Superfund law - makes companies liable for clean-up costs from releasing hazardous materials into the environment, yet several toxic chemicals on the Superfund list are exempted if used for oil and gas production, and natural gas itself is excluded as a hazardous substance.50
- The Clean Air Act - sets limits for major pollution sources including aggregates from multiple smaller sources from one operator. Oil and gas wells are exempt from this aggregation which in essence eliminates reporting from fracking operations.
- The Toxic Release Inventory (TRI) - requires most industries to report releases of toxic substances to the EPA, including chemical use, point and fugitive onsite air releases, water releases, on and off-site land releases, underground injection, transfers to a treatment, and waste management facilities. Despite their use of toxic chemicals throughout production, oil and gas facilities are not required to report to the TRI.
- The Resource Conservation and Recovery Act - governs the disposal of solid and hazardous wastes from the point of creation to transport to disposal. In 1980, Congress exempted oil field and natural gas production wastes and EPA eventually ceded authority to state regulation leaving fracking fluid and produced water unregulated under the nation's premier hazardous waste law.

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- The National Environmental Policy Act (NEPA) - ensures the federal government considers environmental impacts before undertaking any major federal action (such as oil and gas wells on BLM and public lands). The Energy Policy Act of 2005 stripped NEPA's strong requirements and replaced it with much narrower and weaker process for several oil and gas related activities. 51

Shifting regulatory framework at Federal level

Newly proposed federal regulations highlight the government's perception that current regulations are insufficient and need to be significantly strengthened. Congressional action poses regulatory risk to investors that could result in increased costs and disclosures.

- FRAC Act: In June 2009, the Fracturing Responsibility and Awareness of Chemicals Act—or FRAC Act—was introduced in Congress to reinstate the EPA's authority to regulate hydraulic fracturing under the Safe Drinking Water Act.52 In March 2011, it was reintroduced in the House and Senate. Although it is not expected to move in the current congress, companies should acknowledge the potential for its future enactment.
- Environmental Protection Agency: Currently, the EPA is taking a close look at fracturing and plans to draft rules requiring increased disclosure of the chemicals used in the process. 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." In late 2011 the EPA announced its final research plan and confirmed that the initial research results and study findings will be released to the public in 2012 and the final report will be available in 2014.53 At the same time, in response to a petition filed by Earthjustice, the agency will use its authority under the Toxic Substance Control Act to require companies to provide increased disclosure on the chemicals used in the fracturing process.54
- EPA Oil and Gas Air Standards: The Environmental Protection Agency (EPA) proposed what it called "a suite of highly cost-effective standards to reduce emissions of smog-forming volatile organic compounds (VOCs) and air toxics from the oil and natural gas industry [that] can cause cancer."55 The American Petroleum Institute contends the rule will be "overly burdensome."56 Others, like Texas state representative Lon Burnam, however, showed up at EPA hearings to encourage the agency to "protect public health by placing reasonable limits on air pollution that will both reduce emissions and increase industry revenues."57 The proposed rules would apply to the more than 25,000 wells that are fractured and refractured each year, as well as to storage tanks and other equipment found at well sites, compressors and natural gas processing plants.58 EPA has estimated per unit costs for the various proposed requirements. Some examples of costs include: $21,871 to fix equipment leaks at a well pad; $33,884 to fix equipment leaks at a natural gas processing plant; $13,956 to fix storage vessels, and so on.59 ExxonMobil's materials do not include any estimates of the number of its well pads and other facilities that may be affected by this rule, or the potential total costs involved in complying with the rule.
- EPA Diesel Guidance: EPA has drafted Underground Injection Control Class II permitting guidance for hydraulic fracturing activities that use diesel fuels in fracturing fluids. The need for permitting guidance was highlighted by a congressional investigation that found that oil and gas service companies injected over 32 million gallons of diesel fuel or hydraulic fracturing fluids containing diesel fuel in wells in 19 states between 2005 and 2009, but no companies obtained permits for diesel fuel use in hydraulic fracturing, "which appears to be a violation of the Safe Drinking Water Act."60 The new EPA guidance is accepting public comments until July 2012, and according to a bi-partisan group of Senators "the guidance could have serious effects on states' primacy as well as create burdensome permitting requirements that could have widespread implications for oil and gas development across the country."61

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- EPA Wastewater Rule: In October 2011 EPA announced that it plans to develop new rules over the next three years for disposing of natural gas drilling wastewater.62 The agency said the proposal reflects recommendations in the U.S. Secretary of Energy's advisory board report. Among that panel's August suggestions was that agencies "should review and modernize" rules regarding protection of ground and surface water.63
- U.S. Bureau of Land Management (BLM): The BLM has proposed rules that are stronger than most state laws with respect to chemical disclosure.64 ExxonMobil has numerous oil and gas leases on federal lands that would be affected by proposed hydraulic fracturing regulations proposed by the BLM. As of February 2012, ExxonMobil held 638,000 acres of oil and gas leases on Western federal lands.65

B. Limitations that Regional Water Supply May Place on ExxonMobil Operations or Expansions

The shareholder resolution asks about public opposition to hydraulic fracturing and related natural gas development “including any limitations which regional water supply or waste disposal issues may place on operations or expansion.” ExxonMobil provides little information on this issue although the examples above show that public concern and new regulations about water may have a significant impact on operations.

Exxon’s opposition statement says “We are also demonstrating leadership in our operations in the reuse of produced water to reduce freshwater requirements. Our XTO operations in the Marcellus region are deploying closed loop systems for drilling fluids and installing treatment systems to recycle flow-back and produced water.”

Proponent response: ExxonMobil misrepresents its leadership role as it has the worst recycling rate in the Marcellus Shale and it is unclear if they are doing any recycling at all in the Barnett Shale. ExxonMobil’s information fails to capture the enormity of the water supply limitations facing the industry and that may affect Exxon's operations in regions such as the Marcellus Shale, Eagle Ford Shale, Barnett Shale, and Haynesville Shale.

Pennsylvania: According to Pennsylvania Department of Environmental Protection (DEP) data, in the six-month period from July to December 2010, XTO disposed of 202,846 barrels of fluid waste (produced water/brine, fracturing fluids and drilling fluids).66 DEP records show that 4,224 of these barrels (2% of XTO's fluid wastes) were being stored, "pending disposal or reuse." During the same six-month period in 2011, records show that XTO disposed of 281,821 barrels of fluid waste, but only 546 (0.19%) of these wastes were reused.67 This does not suggest a very serious effort at "demonstrating leadership.”

As seen from Table 2 below, less than 0.2% of XTO's fluid wastes (drilling, hydraulic fracturing and produced water) in the last half of 2011 were recycled and reused in the Marcellus Shale, while several other companies recycled more than 90% of these types of wastes.

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Table 2. XTO waste fluid recycling vs. other Marcellus Shale Operators68

	Fluid wastes (drilling and fracturing wastes, brine) going to wastewater plants or injection wells	Fluid waste recycled and reused	% of fluid wastes recycled and reused
XTO Energy	281821	546	0.19
Atlas Resources	357,154	78,233	17.97
Chevron	624612.1	502608.48	44.59
Talisman Energy	368242.6	940663.02	71.87
Range Resources	268150.09	1217833.19	81.95
CNX Gas	13879.6	146050.08	91.32
Chief Oil and Gas	2204	85059	97.47
Chesapeake Energy	9355	883281.77	98.95
Cabot Oil and Gas	3049.3	417878.41	99.28
Energy Corp. of America	2505	528014	99.53

Texas: There is a drought occurring in Texas that has increasingly pitted companies drilling for natural gas against traditional water users. Numerous newspaper articles have outlined these impacts:

- "The worst Texas drought since record-keeping began 116 years ago may crimp an oil and natural- gas drilling boom as government officials ration water supplies crucial to energy exploration."69
- The water crisis in Texas, the biggest oil- and gas- producing state in the U.S., highlights a continuing debate in North America and Europe over the impact on water supplies of a production technique called hydraulic fracturing. Environmental groups are concerned the so-called fracking method may pose a contamination threat, while farmers in arid regions like south Texas face growing competition for scarce water.70
- The severe drought in Texas has prompted local authorities to impose water limitations, which affect not only the citizens but also the local oil and natural gas companies.71 In the summer of 2011, the city of Grand Prairie, near Fort Worth, stopped selling water to oil and gas companies as part of its drought-contingency measures, which also included lawn-watering restrictions.72 In October 2011, Southlake amended its oil and gas ordinance to include a provision that bans hydraulic fracturing during the summer months “regardless of the source of the water used in the fracturing and completion processes.”73 The amendment was proposed because of the city's continuing water shortage caused by drought.74 In February 2012, Denton’s official gas drilling task force voted 5 to 0 to require drillers to recycle water used in hydraulic fracturing.75
- In South Texas, tensions are rising as companies scramble to lock up water to drill natural gas and oil wells. All across the state, companies have been on a buying spree, snapping up rights to scarce river water—easily outbidding traditional users such as farmers and cities. Led by ExxonMobil, they also are drilling water wells three times as many as they did five years ago. They are even tapping into municipal water systems, though parched cities have begun cutting them off.76

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- Mark McPherson, a Dallas-based water-rights lawyer who has represented both ranchers and oil companies, expects conflicts over water to increase as hydraulic fracturing expands. Texas resource-development laws are designed to encourage the oil industry to produce as much as possible, he says, but in recent years, the state's water use rules have been geared toward conservation. "Those two fundamental philosophies are diametrically opposed to each other," he says. "They are in conflict from the get-go." 77

ExxonMobil has failed to convey how the company is currently handling its water management in the Barnett Shale, where it produced 860 million cubic feet of gas in 2010, or in the Eagle Ford Shale, a newer play where ExxonMobil reportedly holds 120,000 acres of leases for natural gas and oil.78

Eagle Ford
Water usage is especially acute in southern Texas's Eagle Ford Shale area because drilling there is more water-intensive than other regions – it takes three-to-four times as much water as fracturing a Barnett Shale well. Fracturing a single Eagle Ford well requires as much as 13 million gallons of water, enough to supply the cooking, washing and drinking needs of 240 adults for an entire year.79 According to Robert Mace, a deputy executive administrator of the Texas Water Development Board, water consumption by Eagle Ford Shale drillers is forecast to explode during the next 25 years. The University of Texas's Bureau of Economic Geology estimates fracking-water demand in the area will jump 10-fold by 2020, and double again by 2030.80

In the summer of 2011, water-management districts were warning residents and businesses to curtail usage from rivers, lakes and aquifers. The shortage forced oil and gas companies to go farther afield to buy water from farmers, irrigation districts and municipalities.81 On June 2, 2011 the Edwards Aquifer Authority, which oversees underground water supplies around San Antonio and along the northern edge of the Eagle Ford Shale declared a Stage 2 emergency requiring a 30 percent cut in water usage. Other water districts have imposed similar restrictions.

Barnett Shale
The Railroad Commission of Texas (RRC), the body that regulates natural gas and oil development in Texas, also mentions waste water recycling efforts. According to the RRC, "Recognizing the concerns with water use in the area, over the past few years several companies have applied for, and the Commission has approved, recycling projects in the Barnett Shale to reduce the amount of fresh water used in Barnett Shale development activities."82

The RRC website lists all of the recycling projects that were approved by the Commission. Neither ExxonMobil nor XTO is mentioned on this list.83 If other operators are recycling water, it is presumably possible to do so. ExxonMobil's website does not give any indication that it is recycling fracturing water in any of its Texas operations. The Dallas Morning News reported: "As for concerns about handling used frack water, [ExxonMobil CEO] Tillerson said the industry is recycling more water because of the expense of trucking in more. Few natural gas producers in North Texas recycle water. In XTO Energy's proposal to drill on city of Dallas property, the company gets water from a city hydrant and takes used frack water to disposal wells outside of the city."84

B. Fracking Fluid Disclosure, Content, and Quantity

As mentioned above, momentum at the state and federal level clearly indicates that expectations around chemical disclosure are expanding and increasing. We believe companies should respond to and stay on the cutting edge of this trend in order to maintain their social license to operate.

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ExxonMobil's opposition statement says "We strive to understand, discuss, and appropriately address community concerns with our operations. A vital component of building community trust is transparency of operations, and we support the disclosure of the ingredients used in hydraulic fracturing fluids, including on a well-by-well basis. We are working with industry associations and state government entities to develop a Web-based, publicly accessible disclosure system, FracFocus.org. We input information from our wells into FracFocus, and make parallel disclosures where we have hydraulic fracturing operations internationally"

Proponent response:
The Company's participation on Fracfocus is highlighted in its opposition statement and on its website. ExxonMobil's posting on Fracfocus currently totals 1307 wells. But according to Exxon's 10-K filing for 2010, at the end of 2010, the company had 36,189 productive gas wells (and 23,789 productive oil wells) in the U.S. It is likely that the majority of the gas wells have been fractured, which would mean that approximately 3.5% of its gas wells are listed on Fracfocus.

Despite ExxonMobil's very public calls for disclosure of fracking fluids, Fracfocus does not require full disclosure of chemicals used. Its standard disclosure is the Material Safety Data Sheets (MSDS) required by the Occupational Safety and Health Administration (OSHA). OSHA requirements do not cover a comprehensive list of chemicals of concern as it is specific for industrial accidents not groundwater monitoring and they often omit key data.85 Disclosure exceptions are also made for proprietary information which is left to the company to define.

Fracfocus and ExxonMobil's own website compares fracking chemicals to food processing products or general household products such as detergents or cooking oils as a way of showing how benign they are. Some of these, such as citric acid are fairly innocuous for human health, yet others are known or suspected carcinogens.86 Natural gas drilling uses several hundred different chemical products that are comprised of hundreds of chemicals to meet the specific geological and operational needs of the site.87 From this mix a smaller number of chemical compounds are used to meet the specific geological and drilling requirements of the well site. Toxic chemicals are used at every stage of drilling and collecting gas.

- An April 2011 report by the U.S. House Committee on Energy and Commerce on the chemicals used in hydraulic fracturing found that, "between 2005 and 2009, the 14 leading hydraulic fracturing companies in the United States used over 2,500 hydraulic fracturing products containing 750 compounds. More than 650 of these products contained chemicals that are known or possible human carcinogens, regulated under the Safe Drinking Water Act, or listed as hazardous air pollutants."88 Naphthalene, xylene, toluene, ethylbenzene, and formaldehyde, for example, each used in a number of proprietary fracking solutions, are known or suspected human carcinogens.89
- A 2010 study by the Endocrine Disruption Exchange found 942 products containing 632 chemicals are used in natural gas operations. Further research on 353 chemicals found that at least 75% could have affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems. Approximately 40–50% could affect the brain/nervous system, immune and cardiovascular systems, and the kidneys; 37% could affect the endocrine system; and 25% could cause cancer and mutations.90

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- In 2008, a study in Colorado found at least 65 chemicals used by natural gas companies were defined as hazardous under the major federal statutes designed to protect against toxic contamination. If these chemicals were released from an industrial facility, reporting to the EPA would be required, and specific clean-up protocols prescribed.91

Fracfocus and ExxonMobil's website also emphasize that chemicals only make up only 0.5 percent to 2% of frack fluid. While accurate, it is also misleading and underplays the associated risks because it fails to convey the enormous volumes of liquid used to fracture wells.

- In April 2011, a Congressional investigation reported that oil and gas companies, as part of their fracking process, injected hundreds of millions of gallons of hazardous or carcinogenic chemicals into wells in more than 13 states from 2005 to 2009 (fracking has grown exponentially since then).92
- The Environmental Working Group estimates the amount of diesel and petroleum distillates used in a single well is enough to contaminate 650 million gallons of drinking water.93

Given the significant quantities of water used and produced, the quantities of toxics present are very significant.

5. HIGH VIOLATION RATE CONTRIBUTS TO COMMUNITY OPPOSITION

Enforcement and violations

ExxonMobil's opposition statement says "ExxonMobil is committed to operating in an environmentally responsible manner. Our Environmental Policy commits us to continuous efforts to improve environmental performance and requires our facilities to be designed, operated, and managed with the goal of preventing incidents and reducing adverse impacts, including impacts associated with the development of unconventional natural gas."

Proponent response: The resolution specifically asks for information on: "government enforcement actions, including allegations of violations; total aggregate government fines on an annual basis; facility shutdown orders, license suspensions or moratoriums on licensing, exploration or operations." The Company provides little or no information on the above items.

Yet state records show that just between January 1, 2010 and February 13, 2012, Exxon-XTO operations in Pennsylvania were inspected 70 times, and Pennsylvania Department of Environmental Protection (DEP) enforcement staff found 156 violations. The Company was fined a total of $190,000 for its infractions over that time period.94 ExxonMobil, in fact, has one of the highest rates of violations of all gas drilling operations in the Marcellus Shale with little improvement over time.

Pennsylvania: Of more than 60 companies operating in the Marcellus Shale:

- XTO had the second highest violations per new well in 2011 with an average of 6.09 per well. Thirty two operators had less than 1 violation per well and the average for all operators was 0.56 violations per well. This is an increase from 2010 when XTO averaged 3.67 average violations per its 18 new wells that year which is more than quadruple the 0.86 average of all 2010 operators.95 From 2010-2011 XTO had the second highest increase in violations of all Marcellus Shale operators.

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- Despite ExxonMobil's opposition statement claim that it is committed to "continuous efforts to improve environmental performance," when viewed over a longer time frame XTO is ranked seventh in terms of the number of violations at Marcellus Shale wells in Pennsylvania between 2008 and 2011, and had the highest rate of violations, with an average of three violations for every well it drilled.96
- One issue that is consistently identified in studies as a potential source of pollution is improper well casing and cementing. XTO has violated Pennsylvania rules relating to proper casing and cementing of wells numerous times in the past few years. It received its largest fine ($150,000) in May 2010, for violating Rule 78.83 - Improper casing to protect fresh groundwater.
- XTO is also the subject of an ongoing Pennsylvania Department of Environmental Protection (DEP) investigation relating to methane migration. On May 17, 2011 the DEP received a report of bubbling well water at a home about 2,300 feet from the Moser site pad where XTO Energy drilled and hydraulically fractured three wells. The agency then received a report about bubbling water along a 50-yard section of Muncy Creek.97 By June 16 DEP had found methane gas in a total of five water wells in Lycoming County.98 On June 17, it was reported that seven water wells were contaminated.99
- XTO was issued a Notice of Violation for discharge of pollutional material to waters of Commonwealth and for allowing fluids from lower formations to enter fresh groundwater,100 and as of February 15, 2012 the DEP investigation was still ongoing.101 ExxonMobil's disclosure documents do not mention this methane migration investigation. Nor does the Company disclose any potential financial risk to the company from this investigation.

Most state oil and gas agencies do not have publicly accessible databases of violations, enforcement actions and penalties like the Pennsylvania DEP's Compliance Report System. So, without disclosure by ExxonMobil of penalties assessed by other oil and gas agencies, there is no way for shareholders to know the full extent of the cost of non-compliance incurred by ExxonMobil in most states where it has natural gas operations.

Texas: Texas does not have a publicly accessible database on violations and penalties, so it is not possible to determine the extent of ExxonMobil's regulatory infractions in the state. Yet the Railroad Commission of Texas (RRC) does have a database that can be searched for actions that have been taken to stop production at oil and gas leases. Unlike many other states, the RRC has the ability to stop production at oil and gas well leases when operators are out of compliance with rules. The RRC does this by issuing severances or by sealing wells. When these severances/seals are issued, operators are required by law to halt production from the offending wells or leases.

Between January 1, 2010 and December 31, 2011, XTO was issued severance letters for 188 leases, and ExxonMobil was issued 37 severances.

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Violation disclosure:
Companies are increasingly facing enforcement actions and fines associated with the environmental impact of their operations. These violations contribute to community wariness of fracturing operations. “Risky Business: An Analysis of Marcellus Shale Gas Drilling Violations in Pennsylvania 2008-2011,” sums up the situation in the Commonwealth as follows:

Using records obtained by the Pennsylvania Department of Environmental Protection (PADEP), the PennEnvironment Research and Policy Center identified a total of 3,355 violations of environmental laws by 64 different Marcellus Shale gas drilling companies between January 1, 2008 and December 31, 2011. Of these violations, the PennEnvironment Research and Policy Center identified 2,392 violations that likely posed a direct threat to the environment. Moreover, PennEnvironment believes these numbers offer a conservative view of environmental violations taking place across the Commonwealth by Marcellus Shale gas drilling companies. These data only include violations discovered by PADEP’s enforcement staff. Yet based upon the number of wells drilled and limited PADEP enforcement staff, further violations that have gone undetected are likely.102

While Pennsylvania is one of the few states publicly disclosing alleged violations, investors believe that companies should themselves acknowledge violations and lessons learned, as Talisman Energy currently does, as a means of acknowledging and responding to public concerns. More importantly, since most states do not disclose such information, investors are largely left in the dark about companies’ overall record of compliance and associated risk management practices making direct company disclosure a necessity.

Furthermore, tracking violations more closely can help companies manage and reduce problems. “When Chief Oil & Gas landed near the top of several lists – including the most fines of any Marcellus Shale drilling company in Pennsylvania – its leadership asked for a meeting with the head of the Department of Environmental Protection. Chief’s operations leadership flew up from Dallas because ‘they were not pleased,’ recalled then-DEP Secretary John Hanger recently of that meeting last summer, ‘they told me they were taking steps to improve their environmental performance, improving their control of water, improving their command and control on site.’”103 Investors believe the above demonstrates that while it is valuable for states to make this kind of information available, it also clearly shows that companies should be tracking and disclosing this information directly.

Lawsuits:
According to the law firm Sedgewick LLC, “with over three dozen lawsuits filed, of which ten are styled as class actions... lawsuits are expanding beyond groundwater contamination to include claims of air pollution, patent infringement, employee exposure to hazardous chemicals, earthquakes and even criminal liability.” 104

ExxonMobil is implicated in some of these lawsuits. Two Arkansas lawsuits were filed in May 2011 directly naming XTO Energy and three other companies as Defendants. Both lawsuits allege that Arkansas residents living within a three-mile radius of gas wells operated by Southwestern Energy, XTO Energy, Chesapeake Energy, and BHP Billiton Petroleum have suffered from loss of use and enjoyment of their property; contamination of soil, ground water, well water, and air; diminution in value of their property; and have suffered shock, mental anguish and physical harm and injury.”105 Stuart Smith, a New Orleans-based plaintiffs’ attorney, told Bloomberg the number of cases will increase as fracking expands into more populated areas and complaints grow. More drilling may also create new routes for the chemicals to migrate.106

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6. CONCLUSION

The use of hydraulic fracturing in natural gas drilling has become highly controversial. Concern about water sources, toxic chemicals and wastewater has led to new regulations in several states and proposed federal legislation. Negative local impacts are straining community resources and generating opposition to fracturing operations. In this climate, companies risk increased regulatory and legal risks along with a significant increase in the proliferation of restrictions, bans, and moratoria in strategically important areas.

As a result, investors need more information to determine how companies are managing the community impacts along with the impact such opposition has had on its operations now and into the future. In the absence of meaningful disclosure, investors have no way of fully assessing the risks and rewards from investing in various companies in the energy sector, and are concerned about unpleasant shocks to shareholder value. Currently ExxonMobil fails to provide sufficient disclosure in this area. ExxonMobil's history of violations demonstrate that things can and do go wrong. As a result, we encourage shareholders to vote in support of this proposal calling on the Company to disclose risks to the company's operations, finances, and gas exploration associated with community concerns, known regulatory impacts, moratoriums, and public opposition to hydraulic fracturing and related natural gas development.

This is not a solicitation of authority to vote your proxy. Please DO NOT send us your proxy card; As You Sow is not able to vote your proxies, nor does this communication contemplate such an event. As you Sow urges shareholders to vote for Item number 8 following the instruction provided on the management's proxy mailing.

APPENDIX 1: EXAMPLES OF PUBLIC OPPOSITION TO EXXON'S FRACKING OPERATIONS AND PRACTICES

In 2010-11, there were at least 21 actions in Arkansas, Oklahoma, New York, Pennsylvania, and Texas alone (Table 3)

Table 3. Recent Local Opposition to Exxon-XTO operations.

Location	Date	Protest details
White County, AR	Nov.17, 2011	Arkansas Fracking shoots video of XTO fracking a gas well in White County. "We live near this well, and meanwhile back at our house, we are all sick with severe headaches, bloody noses, mysterious skin rashes and lesions, hair falling out, nausea, etc... We never had these problems before XTO started drilling in our neighborhood."107
Evans City, PA	Oct. 6, 2011	Close to 100 people protest XTO gas wells being drilled at a local dairy farm.108
Carter County, OK	Sept. 26, 2011	Video shot by Dale Dixon shows XTO flares in rural Oklahoma, many which have been burning for more than a year, according to the video. Video posted on BlueDaze blog with comment "Here is how XTO operates when they can get away with it. Don't think they won't do the same in Dallas."109
McDonald, PA	Aug. 31,	Westmoreland Citizens Marcellus Group110 testifies at a Citizens Marcellus Shale Commission hearing about lack of

	2011	compliance by natural gas companies. They cite XTO's Tub Mill spill, saying that a citizen, not XTO, reported the spill (which contaminated a creek designated as a priority watershed with drilling mud).111
Dallas, TX	June 29, 2011	Dallas Area Residents for Responsible Drilling post video entitled, “XTO/Exxon best practices coming to Dallas,” which shows ongoing contamination problems at ExxonMobil’s McGill lease gas wells in south Texas.112

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Pittsburgh, PA	June 11, 2011	250 protesters in Pittsburgh blame ExxonMobil for depriving Pennsylvanians of education and public-works funding by shirking taxes.113
Delaware River Basin	May 11, 2011	About 300 people crowd into Deposit High School's auditorium for a Delaware River Basin Council (DRBC) hearing on XTO Energy's application to withdraw up to 250,000 gallons of water per day from Oquaga Creek in Broom County New York. The majority of them speak against the withdrawal. Also, the New York Department of Environmental Conservation (DEC) sends a letter to the DRBC opposing the withdrawal, stating that “New York requests that all Delaware River Basin Commission water withdrawal applications within New York that are associated with high volume hydraulic fracturing be postponed until completion of the New York environmental review process."114 XTO’s application is not approved,115 and the decision is postponed as requested by DEC.116
Delaware River Basin	May 2011	Keeptapwatersafe posts action alerts asking citizens to Oppose XTO/ExxonMobil’s Massive Water Withdrawal from the Upper Delaware!117 Many organizations do similar alerts (e.g., Delaware Riverkeeper,118 American Rivers,119 Natural Resources Defense Council,120 and Citizen Campaign for the Environment.121
Fort Worth, TX	April 23, 2011	Several dozen protesters marched through downtown Fort Worth, reflecting concerns about air and water pollution.122 (XTO has wells in Fort Worth – one of them causes a “vapor cloud” that led to the rerouting of local traffic.123)
Southlake, TX	April 14, 2011	Southlake Taxpayers Against Neighborhood Drilling (STAND) sues Southlake to prevent the city from issuing final permits for the XTO Milner drilling permit application.124 Lawsuit results in a temporary restraining order that blocked the city from issuing permits to XTO for its operations. Then, “Just weeks after a lawsuit filed by a group of concerned Southlake residents suspended natural gas drilling at the city's first and only approved site, XTO Energy has announced it no longer has plans to come to Southlake.”125
Southlake, TX	March 2011	Opposition to gas drilling grows in Southlake. Yard signs saying “Get the Frack Out of Here” and “Protect Our Kids/No Drilling” appears in some yards in Southlake.126
Southlake,	March	Many citizens speak out against the XTO Joe Wright Pad site

TX	29, 2011	(10-001). The site was rejected by Southlake city council at their 3/29/2011 meeting.127
Dallas, TX	Feb. 17, 2011	Citizens turn up at a city planning commission meeting to oppose an XTO permit to drill near Joe Pool Lake. The commission delayed the decision indefinitely.128
Dallas, TX	February 2011	FracDallas posts action alert for Dallas citizens, including a hearing of the Dallas City Planning Commission vote on an XTO drilling permit application for FM 1382.
South Lake TX	Feb. 2011	24 residents within 200 feet of a proposed XTO well send a petition to Southlake City Council to deny the well.129
Keller, TX	Feb. 2011	Of about 80 people attending, about 30 residents speak during the public hearing on a request by XTO to drill up to 12 gas wells within 400 feet of two Keller homes. Most residents voice concerns about safety, traffic and additional noise the gas site would bring to the neighborhoods. Council denies XTO's request with a 4-1 vote.130
Dallas, TX	Sept. 15, 2010	Dallas Area Residents for Responsible Drilling send out action alert to ask residents to oppose XTO Energy's Special Use Permit for gas drilling the Naval Air Station (Mountain Creek Lake) by calling commissioners and attending the City Planning Commission meeting.131 "On Oct. 20... residents succeeded in raising enough of a protest that the City Plan Commission voted 7-6 to deny XTO a specific-use permit it needs to drill."132
Corinth, TX	May 2010	Residents pack city council chambers and overflow facilities again, asking the City Council to deny 11 variances requested by XTO Energy for drilling at least two natural gas wells at Lake Sharon Christian Center.133 Residents then they successfully convince the council to implement a 120-day moratorium on drilling. A task force is established to draft stronger oil and gas rules.134
Corinth, TX	May 4, 2010	Video entitled "Corinth Residents Speak Out." Residents give their accounts of their opposition to XTO leases and variances.135
Corinth, TX	April 2010	Nearly 100 people show up at a City Council meeting to and present a petition with 977 signatures opposing XTO's request to drill natural gas wells at Lake Sharon Christian Center.136
Fort Worth, TX	March 2010	Residents express concern about XTO gas well being drilled next door to a daycare.137

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APPENDIX 2: ENVIRONMENTAL, SOCIAL, AND HEALTH IMPACTS WHICH ARE CONTRIBUTING TO COMMUNITY OPPOSITION

Concern about environmental, social, and health impacts from hydraulic fracturing and related operations have led to growing opposition, litigation, and regulatory risks. Key concerns include:

A. Environmental Impacts

Water

Water contamination from toxic waste water is at the heart of the controversy over fracking. Companies conducting fracturing operations must manage millions of gallons of waste water—portions of fracturing fluids that return to the surface plus naturally-occurring formation waters brought to the surface during and following fracturing. This water contains highly toxic chemicals used in the fracturing process, naturally occurring radioactive materials, dissolved solids, and heavy metals. This waste water must be stored, transported, treated, and disposed of. These operations pose numerous risks at every stage of this process.

Groundwater contamination

Millions of gallons of chemical laced water are pumped down a well to frack open rock. Between 20%-80% of fracking fluid is left underground. Industry is adamant that fracking takes place so far below fresh water sources that fluid left underground cannot reach or contaminate groundwater.

Yet, British Columbia regulators contend that fracturing shale can open up longer fissures allowing fracking fluid left underground to eventually reach groundwater reservoirs. They have identified 19 “fracturing communication” incidents where new wells have met up with other wells that were not expected. There has been little U.S. research to determine how fracturing may open pathways to groundwater.138

The University of Texas found groundwater contamination in conjunction with gas drilling but conclude that these problems are a result of conventional gas drilling techniques such as casing failures, poor cement jobs, and spills on the surface.139 Poor cement jobs are perhaps the most important aspect for preventing groundwater contamination and one the industry still has difficulty controlling. As Ultra points out on its web site link, wells consist of several layers of steel casing, each of which is covered by an outside layer of cement to seal off any fluids or gas from leaking into the earth and migrating upward to water sources. Yet the Environmental Defense Fund estimates that one in ten wells have improper cement jobs (the most infamous example of an inadequate cement job contributed to the BP Deepwater Horizon oil spill in the Gulf of Mexico).140

Lawsuits alleging impacts to groundwater sources are moving forward in numerous communities.

- According to analysis done by Sedgwick LLP in September 2011, over three dozen fracking-related lawsuits had been filed, and ten of which were class action suits.141
- In December 2010, two lawsuits were filed in federal court alleging that Chesapeake Energy and Encana Oil & Gas operations contaminated property owners’ water wells.142

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- In September 2010, 13 families in Pennsylvania sued Southwestern Energy alleging that their drinking water was contaminated by the company's drilling operations.143
- In Colorado several years ago, EnCana reached a reportedly multi-million dollar settlement with a private landowner and was fined $266,000 by regulators for release of gas production waste and failure to protect water bearing formations.144

Such lawsuits consume company resources and also strain community relations. As a result, investors believe increased transparency in this area is necessary.

Wastewater - surface contamination

Between 20 to 80 percent of fracking fluid returns to the surface.145 Wells continue to release 'produced water' which consists of saltwater, naturally occurring toxics, and radioactive materials.

Unlike groundwater, contamination of surface water is well documented.

- In April 2011, a Chesapeake Energy well in rural northern Pennsylvania spilled thousands of gallons of drilling fluid, contaminating a stream and leading officials to ask seven families who live nearby to evacuate as crews struggled to stop the gusher.146
- That same month, a federal judge issued a temporary restraining order against Chesapeake Energy in one of three pending cases that challenge widespread waste-dumping practices in northern West Virginia.147
- In September 2010, a Chesapeake Energy well caught fire and the company was issued a violation for "failing to prevent the release of natural gas and the potential pollution of waters of the state." The company's operations at the site were shut down temporarily.148
  - 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."149 In response, the Company was forced to shut down its operations in Pennsylvania for 40 days and pay $353,400 in fines.150
- Data from the Pennsylvania Department of Environmental Protection (DEP) shows that from January 1, 2009 to December 31, 2011 there were 1,927 violations against Marcellus Shale-related companies for a total of $3.5 million in fines.151 (The DEP posts this information on its web site but does not inform the landowners of violations.)
- A June 2010 explosion at a well in West Virginia owned by Chief Oil and Gas injured seven workers. The West Virginia Department of Environmental Protection issued two notices of violation for improper well casing, as well as an order to cease operations until the Company reviewed casing depths, instituted personnel trained in blowout prevention to oversee drilling at all times, and demonstrated an understanding of the causes of the blowout.152
  - Blowouts are a rare occurrence, but subsurface blowouts appear to be under-reported.153

Storage

Once on the surface, wastewater is often kept in lined or unlined impoundment ponds that are susceptible to torn linings, storm runoff, or collapse. Impoundment ponds also pose risks of air pollution as do methane leaks from storing water in tanks. New York's proposed fracking regulations call for only allowing storage of wastewater in watertight tanks. In the Marcellus Shale several companies are moving to closed loop systems of fluids.

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Treatment
Local municipalities' residential treatment facilities are not prepared for industrial waste (including high levels of salinity and other contaminates) nor for the quantities of water. The New York State Department of Environmental Conservation (DEC) raised concerns in 2009 regarding wastewater treatment and said it will not issue drilling permits until the companies demonstrate they are capable of adequately disposing of waste water. It listed three options for companies - having it processed at sewage plants in New York, trucking it to specialized treatment plants in nearby states, or injecting it underground.154 According to an analysis of the 135 New York treatment plants in the DEC report, only a tiny fraction could or would accept Marcellus Shale wastewater, and only in small amounts. Of the 11 out-of-state plants, nine could not take more wastewater and two refused to respond. Of the six New York injection wells, only one was licensed to accept gas wastewater (which it uses for its own operations).155

Disposal
Insufficient capacity for waste water disposal could potentially limit the development of fracking, especially in Pennsylvania which has few disposal wells. Of the almost 22 million gallons of wastewater that Pennsylvania's Marcellus shale operators sent to disposal (injection) wells in the first six months of 2011, nearly 99% went to Ohio.156 Ohio approved 29 permits for injection wells in 2011 (mostly for out of state water) after averaging about four a year for the past two decades. This included 93% of the water sent to the Youngstown, Ohio well that had to be closed after being linked to 11 nearby earthquakes. Citizen and regulatory efforts are now being made to prevent Ohio from becoming a dumping ground.157

Scarcity
Given the millions of gallons of water used for fracking, water scarcity is becoming an issue especially in more arid regions such as Texas, Colorado, and Wyoming. For instance, Texas is experiencing its worst drought since the late 1800's which has placed oil and gas operators in direct competition with other water users. Another burden in arid regions is that most water from residential and agricultural use is put back into local rivers and streams, while fracking involves waste water that needs to be removed from the hydraulic system.

Recycling
Disposal problems led to the industry to develop their recycling capacity. In the Marcellus Shale nearly every company now does some recycling of its liquid waste although these efforts vary greatly from 0.2% by ExxonMobil to more than 90% by other companies158 According to Pennsylvania regulators, even though companies are recycling substantial portions of their wastewater, more wastewater continue to be dumped into rivers because the number of drilling rigs continues to skyrocket.159

Air
While the primary concern about fracking has been its impact on water quality, there is a growing body of science identifying its impacts on air and climate that may also pose significant risks.

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Air emissions are both deliberate and accidental. Companies vent out dissolved gas as fracking fluids are pumped out. Venting can go on for a month or more until gas production is fully up and running and is connected to a pipeline.160 Air emissions also occur from leaks (fugitive emissions) from storage tanks, pipelines, and compressor stations (which pump natural gas through pipelines) and whose emissions alone include hundreds of tons per year of know pollutants such as nitrogen oxides, sulfur dioxide, airborne particulates, carbon monoxide and volatile organic compounds (VOCs).161

VOCs are chemicals that easily vaporize from liquid into gas. VOCs mix with heat and sunlight to create ozone. Ozone exacerbates asthma and other respiratory diseases.162

Air quality

As the number of natural gas wells has increased over the past decade, the contribution of natural gas extraction to declining regional air quality has created concern for residents in various states.

- Rural Wyoming known for its breathtaking vistas now has worse smog than Los Angeles because of its boom in natural gas drilling.163
- Utah had a similar experience as 2011 wintertime levels of ozone in sparsely-populated eastern Utah were higher than in New York City. The Utah Department of Environmental Quality is studying if there is a link to the 10,000 oil and gas wells in that area. The peak ozone value was 139 parts per billion, which is 85% higher than the federal health standard.
- In Denver, air samples of what was expected to be urban smog, turned out to include methane from nearby gas fields. Natural gas wells in the area are losing about 4% of their gas to the atmosphere (not including additional losses in the pipeline and distribution system) according to the National Oceanic and Atmospheric Administration (NOAA) and the University of Colorado, Boulder. NOAA also found high concentrations of butane, ethane and propane in Erie, east of Boulder, where hundreds of natural-gas wells are operating.164
- Dallas-Fort Worth is the largest urban center in the Barnett Shale, and a report by Southern Methodist University found daily air pollution emissions from local natural gas drilling surpassed that of all motor vehicles operating in the nine-county Dallas-Fort Worth metropolitan area165
  - A May 2011 report concluded that by installing equipment to recover emissions in the area, natural gas companies could save up to $52 million annually.166
- Dish, TX has been called the Grand Central Station of the Barnett Shale. Town officials arranged for the Texas Department of State Health Services to come investigate effects the gas industry's emissions could be having on the residents' health.
  - In 2009, town officials spent 15% of the town's annual budget on an independent air quality test that found benzene, xylene, naphthalene, carbon disulfide, and other chemicals at elevated levels.
- In Northwest New Mexico, the switch from drilling for oil to drilling for natural gas has brought more severe and more frequent odor incidents causing health effects in communities. Residents commonly report headaches, nausea, dizziness, and nose, eye and throat irritation during odor events.168

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Climate

Natural gas is touted as a cleaner option to coal or oil and a bridge fuel to green energy. Most discussion on climate focuses on the need to reduce carbon dioxide and natural gas produces less carbon than coal and oil. Yet natural gas produces a much higher amount of methane than coal or oil. Methane is a more destructive greenhouse gas (GHG) as it traps heat at 23 times the rate of carbon dioxide. About 40% of US methane comes from natural gas and accounts for 19-44% of US GHG emissions.169

Methane

A Cornell study contends that shale gas contributes to global warming as much as coal, or even more so.170 The study states that methane is lost from multiple sources including the wellhead, leaks from pipes, and from storage facilities during transport and delivery. Over a 20-year time line, these fugitive emissions may make gas one-fifth to twice as bad as coal from a GHG standpoint.171 Another Cornell study supports an opposing view and the discrepancies in these studies highlight how much more research is needed to reach consensus on the GHG impacts of methane emissions from natural gas. Hydraulic fracturing's GHG emissions may pose another set of regulatory risk.

CO2

Two recent studies challenge the idea of natural gas as a bridge fuel based on its carbon emissions. A UK study concluded that shale gas will not likely serve as a transition fuel as its lifecycle emissions of CO2 are still incompatible with the Copenhagen Accord and that urgent de-carbonization of the electricity supply is required. It further states that without a meaningful cap on GHG emissions, shale gas is likely to increase net carbon emissions and developing shale gas will likely delay zero carbon technologies. 172

A study by the former chief technology officer of Microsoft and climate researchers from the Carnegie Institution for Science came to a similar conclusion. They estimated that switching all coal plants to natural gas over 40 years would generate half as much GHG per watt-hour of electricity, but that the impact on global warming would be negligible. They too point to the necessity of zero-carbon energy source and conclude that "rapid deployment of low-emission energy systems can do little to diminish the climate impacts in the first half of this century. Conservation, wind, solar, nuclear power, and possibly carbon capture and storage appear to be able to achieve substantial climate benefits in the second half of this century; however, natural gas cannot."173

Earthquakes

The injection of fracking waste water (brine) into disposal wells is believed to be the source of earthquakes in Ohio, Texas, Colorado, Arkansas, and Oklahoma. A link between injection wells and earthquakes was first identified in the 1960s. Yet it did not gain attention until recently as more cases occur due to the exponential increase in fluids being used for fracking and needing disposal. Injection wells can be drilled down more than 9,000 feet until it reaches porous material where fluids can spread across long distances for storage. It is believed that some of these fluids reach an existing geological fault that is already stressed and the influx of injection water allows it to slip.174

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Agriculture and Wildlife

Farming / Ranching

Contaminated water and air has led to concerns about impacts on crops and the quality of dairy, meat, and fish products. Research is just beginning into the many reports of livestock illness, death, and stillborn and stunted offspring.175

- Alberta is the heart of Canada's oil and gas region and many farmers there report problems with their water. Few of these become public as companies make farmers sign confidentiality agreements in return for replacement of their water wells. In February 2012 the National Farmers Union in Canada called for a fracking moratorium.176
- An investigation of 24 cases in five states where ranchers linked hundreds of dead cows to fracking described a Louisiana farmer with two herds of cows, one with access to a creek where fracking wastewater was allegedly dumped, reported 21 cows died from the herd with creek access while none of the other herd became ill or died. The study also cites problems collecting evidence due to incomplete testing, lack of full disclosure of chemicals, and nondisclosure agreements when settlements have been reached between the companies and farmers.177
- A study on behalf of the American College of Veterinary Pathologists found that 30 sheep died or were euthanatized during a 21-day period following a 1-day accidental exposure to natural gas condensate.178
- Kansas has proposed legislation allowing fracking solid waste to be spread on fields without requiring a solid waste permit.179 A surge in fracking in southern Kansas has led companies to look for cheaper ways to get rid of large quantities of waste. The alternative is hauling it to landfills and there is only one in the county that will accept fracking waste. The state has put a limit on spreading waste on fields that have chloride levels higher than 900 parts per million, or about two inches of material atop the soil, as high levels of chloride can damage plants, affect the taste of drinking water, and make it more corrosive to water pipes.180
- New York City food professionals have formed groups such as Chefs for Marcellus and are banding together to protect the city's foodshed.181 This is complimented by Farmers Against Fracking which is organizing across the state. These are typical of the hundreds of grassroots efforts raising concern about hydraulic fracturing.

Wildlife

Water and air contamination also impact wildlife.

- Politically active membership organizations such as Trout Unlimited and National Wildlife Federation have opposed hydraulic fracturing due to reports of animals found dead near fracking operations or in nearby waterways, habitat fragmentation from well site and infrastructure construction, and gas drilling in protected areas such as state forests or federal lands (particularly out west).
- Biocides, used to control bacterial growth in drill pipes, have raised concern about impacts on aquatic life and oyster beds in Chesapeake Bay.182

B. Social Impacts

In communities across the country, there is growing concern that along with the environmental and health impacts of hydraulic fracturing operations, the process brings significant impacts on communities as well. In August 2011, the U.S. Department of Energy Shale Gas Advisory Panel released a report where it found that two of four "major areas of concern" pertain to communities: "community disruption during shale gas production" and "cumulative adverse impacts that intensive shale production can have on communities and ecosystems."

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Economic Impact

Communities, and even neighbors, are split between financial winners and losers.

- Higher wages also results in higher costs of living including inflation and, in particular, skyrocketing housing costs (fixed income residents such as the elderly are hit the hardest).183
  - In 2005, the average rent for a one-bedroom apartment in Willison, North Dakota was less than $500. In February 2012 it is more than $2,000.184
- Natural gas related businesses flourish while non-gas related business lose employees and struggle with higher costs.185
- Marketed as a job creator for decades to come, over-production has led to a 10-year low in gas prices forcing companies to cut back drilling operations. Residents and townships are weary of embracing a boom-bust economy for their community.
- Homeowners near drilling operations are concerned about falling home values and difficulties with mortgages. Law firms and NGOs have sprung up to help a growing number of landowners who are trying to get out of their drilling lease.186 187

Roads and Infrastructure

Towns and rural roadways are built for local traffic not industrial operations. About a thousand large trucks are needed for just one fracking operation.

- The impact of tens of thousands of trucks and tankers on these roads is predictable - extensive road damage, a surge in traffic accidents, increased traffic noise, and pollution.
- One media report sums up the new situation in many communities as follows: “It’s possible to travel through gas country without seeing many wells, which often are set back in fields and woods. It is not possible, however, to travel any distance at all without encountering the tankers, dump trucks, and pickups that make the natural gas industry go. Used to haul in water, supplies, and workers and haul our drilling wastes, the trucks are a constant reminder of new prosperity and a constant annoyance to locals. Work goes on around the clock, year-round.”188
- Construction of processing and storage facilities and pipelines all add to an altered landscape and a changing feel for agricultural, rural, or suburban communities.

Social Discord

Fracking brings an influx of hundreds of outside workers.

- This has led to an increase in crime, drugs, and sexually transmitted diseases among other social ills.
  - “county and local governments have to cope with the cost of dealing with more people, more social service referrals and more crime—the latter due to the presence of hundreds of young, unattached men with money to burn. Police calls for service in Bradford County [PA], which has more Marcellus wells than any other in the state, are up 25 percent this year, the Associated Press reported.”189
  - “In Pennsylvania’s Bradford County, DUI arrests by state troopers are on track to rise 40 percent this year after climbing 60 percent last year…the number of sentences handed out for criminal offenses was up 35 percent in 2010…Sheriff Clinton Walters said his officers are handling about a 25 percent increase from last year in everything from warrants for people who fail to appear in court to protection-from-abuse orders. This flood of arrests is such that his office’s van is no longer big enough to transport all the inmates at once from jail to court…”190

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- "In Sweetwater County, Wyo., where natural gas exploration boomed about a decade ago, the population increased from 37,600 in 2000 to 43,800 in 2010, and arrests for drunkenness, drugs and DUI more than doubled from 603 in 2000 to a peak of 1,535 in 2008, according to state figures."191
- A large population of temporary workers can raise tensions between existing residents and those they view as 'outsiders'. Communities are further split between those supporting fracking and those that don't.
- This sudden increase in population strains existing social services such as police, hospitals, and schools – often with corresponding financial burdens.192

In this climate, companies face a threat to their social license to operate as communities increase opposition to, or ban outright, fracturing operations.

C. Health Impacts

Allegations of negative health impacts from fracking combined with the industry's refusal to provide full disclosure of chemicals used is among the most contentious issues surrounding fracking. Studies have begun to look at the community health impacts from natural gas operations.

Chemical Contaminates

As stated earlier, millions of gallons of chemicals may be used over the life of a well.

- Many chemicals used by natural gas companies are defined as hazardous under the major federal statutes designed to protect against toxic contamination (as noted previously, gas drilling is currently largely exempt from these laws).
- These include known carcinogens such as benzene; possible carcinogens including ethylbenzene, acetaldehyde, and formaldehyde; and other compounds such as toluene and xylene that can cause other serious health effects.
- Chemical and natural contaminates are known to leak from a wide array of gas drilling operations including gas wells, impoundment ponds, condensate tanks, compressor stations, pipelines, and processing plants, as well as the exhaust of thousands of vehicles.

Illness

- Evidence in Texas, Wyoming, Louisiana, North Dakota, and Pennsylvania increasingly finds an alignment between worsening health metrics among neighbors of gas wells and related infrastructure. The onset of symptoms and drilling frequently coincided.193
- A Texas hospital system in six counties with some of the heaviest drilling (93,000 natural gas wells) said in 2010 that it found a 25% asthma rate for young children, more than three times the state rate of about 7 percent.194
- More than 250 New York doctors, health care professionals, and medical societies warned New York Governor Cuomo that the state failed to analyze public health impacts of hydraulic fracturing in its rush to approve permits for drilling. The Medical Society of the State of New York has called for a moratorium on natural gas extraction using hydraulic fracturing until scientific information on health impacts is available.195

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- One of the nation's top scientists, Dr. Christopher Portier, director of the National Center for Environmental Health at the federal Centers for Disease Control and Prevention in Atlanta, called for more research to determine the possible impacts of shale gas drilling on human health and the environment. "Studies should include all the ways people can be exposed, such as through air, water, soil, plants and animals," according to Portier.196
- In a January 2012 conference on hydraulic fracturing, leading doctors called for a moratorium on drilling in populated areas until the health impacts of such operations were better understood.197
- In April 2012 the Institute of Medicine, a branch of the National Academy of Sciences, announced it will examine whether the process of hydraulic fracturing to extract natural gas from rock "poses potential health challenges,"198

Radioactive contamination
Fracking wastewater picks up natural occurring radium.

- Radium has been shown to cause liver, bone and breast cancers.199
  - Health problems can arise if it enters a persons' body by eating, drinking or breathing.200
- Exposure can come from leaks, illegal dumping, and when wastewater is been sold as a deicer and dust suppressant on roads, which can potentially run off and contaminate water and enter the food supply.201
- In Pennsylvania, Ultra Petroleum sent 155,000 gallons of wastewater (with levels of radioactivity almost 700 times the levels allowed in drinking water) to nine different towns to be spread on roads to suppress dust.

1 Subsidiaries involved in oil and gas development include: Aera Energy LLC (California), Cross Timbers Energy Services (Texas), Ellora Energy Inc. – Haynesville (Delaware), Metroplex Barnett Shale LLC (Delaware), Mobil Producing Texas & New Mexico Inc. (Delaware), XTO Energy Inc. (Delaware). ExxonMobil, Annual report (10-KA) filed with the Securities and Exchange Commission, February 28, 2011, Exhibit 2, Subsidiaries of the registration, http://www.sec.gov/Archives/edgar/data/34088/000119312511050134/dex21.htm.
2 "Pa. school district gets $628K for drilling lease," Ithaca Journal, December 21, 2011, http://www.theithacajournal.com/article/20111221/NEWS01/112210342/1124/.
3 ExxonMobil, 2010 Financial & Operating Review, p. 42, 44, http://www.ExxonMobil.com/Corporate/Files/news_pubs_fo_2010.pdf.
4 Webb, D., "Transparency at center of fracking debate," Grand Junction Sentinel, January 24, 2011, http://www.gjsentinel.com/news/articles/transparency_at_center_of_frac/.
5 Dana Sasarean, Samuel Block, and Linda-Elling Lee, "Shale Gas and Hydraulic Fracturing in the US: Opportunity or Underestimated Risk?" MSCI Industry in Focus, Unconventional Oil & Gas, October 2011.
6 Williams, J., "Shale Gas: The Keys to Unlocking its Fully Potential," Speech delivered at the SPE Unconventional Gas Conference in Houston, Texas, June 14, 2011, http://www.ExxonMobil.com/Corporate/news_speeches_20110614_jwilliams.aspx.
7 Nishimura, S., "White Chapel (Southlake) group sees competition," Star-Telegram, February 29, 2008, http://blogs.star-telegram.com/barnett_shale/2008/02/white-chapel-so.html. Wethe, D., "More Southlake rivalry between Chesapeake and XTO," Star-Telegram, May 9, 2008, http://blogs.star-telegram.com/barnett_shale/2008/05/more-southlake.html.
8 Gwynne, S.C., Souder, E., and Jacobson, G., "In midst of gas boom anti-drilling movement gains ground," Dallas Morning News, May 15, 2011, http://www.dallasnews.com/business/energy/20110515-in-midst-of-gas-boom-anti-drilling-movement-gains-ground.ece.
9 Article IV, Chapter 9.5 of the Southlake City Code, Gas & Oil Well Drilling and Production.

10 Ordinance 880-B, An Ordinance of the City of Southlake Texas Amending Ordinance 880-A, Gas & Oil Well Drilling and Production of Chapter 95 Article IV of the Southlake City Code, Sec 95243, Operations and equipment practices and standards.
11 Gwynne, S.C., Souder, E., and Jacobson, G., "In midst of gas boom anti-drilling movement gains ground," Dallas Morning News May 15,
2011, http://www.dallasnews.com/business/energy/20110515-in-midst-of-gas-boom-anti-drilling-movement-gains-ground.ece.
12 Austin, B.J., "Dallas gas drilling task force hears from citizens," KERA News, August 3,
2011, http://keranews.org/post/dallas-gas-drilling-task-force-hears-citizens. "Despite industry protests, go-slow drilling plan is right one," Dallas Morning News, May 17, 2011,
http://www.dallasnews.com/opinion/editorials/20110516-editorial-despite-industry-protests-go-slow-drilling-plan-is-right-one.
13 Minora, L., "Drilling industry reps not thrilled with latest Dallas Task Force Recommendations," Dallas Observer, January 20, 2012, http://blogs.dallasobserver.com/unfairpark/2012/01/drilling_industry_reps_not_thr.php.
14 "Gas firm wants to extend Southern Tier leases," Press Connects, July 10,
2011, http://www.pressconnects.com/article/20110710/NEWS11/107100338/Gas-firm-wants-extend-Southern-Tier-leases.

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15 Mouawad, J. and Clifford Krauss, "Gas Company Won't Drill in New York Watershed," The New York Times, October 27, 2009.
16 "Fracking advocates fight NY bans," Associated Press, May 12, 2012, http://newyork.newsday.com/news/region-state/fracking-advocates-fight-ny-bans-1.3714321.
17 "Natural gas drilling moratorium passes New York Senate," Syracuse.com, August 4, 2010, http://www.syracuse.com/news/index.ssf/2010/08/gas_drilling_moratorium_passes.html.
18 New York State Department of Environmental Conservation Press Release, "Unprecedented Turnout at DEC Hearings on High-Volume Hydraulic Fracturing," December 1, 2011, http://www.dec.ny.gov/press/78799.html.
19 Crean, S. "Is the DEC prepared for hydraulic fracturing?" Gotham Gazette, February 7, 2012, http://www.gothamgazette.com/print/3680.
20 Tavernise, S., "As Gas Drilling Spreads, Towns Stand Ground Over Control," The New York Times, December 14, 2011, http://www.nytimes.com/2011/12/15/us/towns-fighting-to-stand-ground-against-gas-drillers.html?pagewanted=all.
21 Wiessner, D., "New York Rulings Could Embolden Towns to Ban Fracking," Thompson Reuters News & Insight, February 28, 2012.
22 "Battling hysteria – the XTO hearing," Energy in Depth, May 26, 2011, http://eidmarcellus.org/2011/05/26/battling-hysteria-the-xto-hearing/.
23 "No gas-drilling water permits in Delaware Basin," Press Connects, December 9, 2011, http://www.pressconnects.com/article/20111209/NEWS10/111209005/No-gas-drilling-water-permits-Delaware-River.
24 State of New York v. United States Army Corps of Engineers et al, complaint filed May 31, 2011, http://www.eenews.net/assets/2011/06/01/document_gw_01.pdf.
25 New York Department of Environmental Conservation, Revised Draft Supplemental Generic Environmental Impact Statement (SGEIS) on the Oil, Gas and Solution Mining Regulatory Program. (Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing in the Marcellus Shale and Other Low-Permeability Gas Reservoirs), September 2011, p. 7-55, http://www.dec.ny.gov/data/dmn/rdsgeisfull0911.pdf.
26 Maher, K., "New Challenges to Gas Drilling," The Wall Street Journal, September 12, 2011, http://online.wsj.com/article/SB10001424053111903648204576552861902466194.html.
27 "Germany's shale gas potential threatened by environmental opposition," Natural Gas Europe, September 15, 2011. http://www.naturalgaseurope.com/germanys-shale-gas-potential-threatened.
28 "Germany's shale gas potential threatened by environmental opposition," Natural Gas Europe, September 15, 2011. http://www.naturalgaseurope.com/germanys-shale-gas-potential-threatened.
29 "Germany's shale gas potential threatened by environmental opposition," Natural Gas Europe, September 15, 2011. http://www.naturalgaseurope.com/germanys-shale-gas-potential-threatened.
30 Danke, N., "German Government to Oppose Fracking," Spiegel, May 7, 2012, http://www.spiegel.de/international/germany/germany-rejects-fracking-to-tap-natural-gas-a-831764.html.
31 Site includes links to the resolutions and ordinances. Food and Water Watch, "Local actions against fracking," http://www.foodandwaterwatch.org/water/fracking/fracking-action-center/local-action-documents/.
32 "New Jersey Fracking Ban: Gov. Chris Christie's 1- year recommendation accepted by lawmakers," The Associated Press, January 10, 2012.
33 Dillon, J., "Vermont poised to become first state to ban fracking," Vermont Public Radio, May 4, 2012, http://www.vpr.net/news_detail/94397/vt-poised-to-become-first-state-ban-fracking/.
34 Penty, R., "Quebec Bans Any Fracking Pending Studies," The Calgary Herald, April 4, 2012.
35 Patel, T., "France Keeps Fracking Ban to Protect Environment, Sarkozy Says," Business Week, October 4, 2011.

36 Konstantinova, E. and Joe Carroll, “Bulgaria Bans Gas Fracking, Thwarting Chevron Drilling Plan,” Business Week, January 19, 2012,
http://www.businessweek.com/news/2012-01-19/bulgaria-bans-gas-fracking-thwarting-chevron-drilling-plan.html.
37 U.S. Department of Energy, office of Fossil Energy, National Energy Technology Lab, and the Ground Water Protection Council, “State Oil and Natural Gas Regulations Designed to Protect Water Resources,” May 2009.
38 Klimasinska, K., “Fracturing-Pollution rule to burden gas producers, API Says,” Bloomberg, December 1, 2011,
http://insideclimatenews.org/news/20120215/blm-fracking-chemicals-disclosure-hydraulic-fracturing-proprietary-natural-gas-d
39 “Fracking fee approved by Pennsylvania Senate- UPDATE,” LeHigh Valley, February 7, 2012,
http://www.lehighvalleylive.com/breaking-news/index.ssf/2012/02/proposed_shale_drilling_fee_is.html.
40 House Bill No. 1950, Session of 2011, § 3256, Civil penalties, General Assembly of Pennsylvania,
http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2011&sessInd=0&billBody=H&
41 “DEP accepts public comment on oil and gas erosion control permits,” Pennsylvania Department of Environmental Protection, January 20, 2012,
http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=19225&typeid=1.
42 Levy, M., “Waste From Gas Drilling At Issue,” Times Union, April 20, 2011.
43 PA DEP Oil & Gas Reporting Website,
https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx.
44 “State halts injection well permits,” Vindy News, January 18, 2012,
http://www.vindy.com/news/2012/jan/18/state-halts-injection-well-permits/?nw.
45 Niquette, M., “Ohio Tries to Escape Fate as a Dumping Ground for Fracking Fluid,” Bloomberg, January 31, 2012,
http://www.bloomberg.com/news/2012-02-01/ohio-tries-to-escape-fate-as-a-dumping-ground-for-fracking-fluid.html.
46 Carr Smyth, J., “Ohio petroleum producers decry call for penalties,” Mansfield News Journal, February 11, 2012.
47Surface water management using cooperative agreements for withdrawal of running water of the state, Louisiana Department of Natural Resources, September 16, 2010,
http://dnr.louisiana.gov/assets/docs/secretary/act955/ACT-955-meeting.pptx

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---

48 "Haynesville Shale Wells," Louisiana Department of Natural Resources, Updated February 10, 2012, Accessed February 19, 2012, http://dnr.louisiana.gov/assets/OC/haynesville_shale/haynesville_20120210.xls.
49 “The Halliburton Loophole,” The New York Times, November 3, 2010.
50 Lewis Kosnik, R., “The Oil and Gas Industry’s Exclusions and Exemptions to Major Environmental Statues,” Oil and Gas Accountability Project / Earthworks, October 2007.
51 Lewis Kosnik, R., “The Oil and Gas Industry’s Exclusions and Exemptions to Major Environmental Statues,” Oil and Gas Accountability Project / Earthworks, October 2007.
52 Senator Robert Casey, Jr., “Statement for the Record, Introduction of the Fracturing Responsibility and Awareness of Chemicals (FRAC) Act,” June 9, 2009, http://casey.senate.gov/newsroom/press/release/?id=3D78271C-E412-4B63-95B8-419E75CE2BB6.
53 “EPA Announces Final Study Plan to Assess Hydraulic Fracturing/Congressionally Directed Study will Evaluate Potential Impacts on Drinking Water,” http://yosemite.epa.gov/opa/admpress.nsf/6427a6b7538955c585257359003f0230/197771b608adfddb8525793d005379c9!Oper
54 German, B., “EPA Moves to Require ‘Fracking” Chemicals Information Disclosure,” The Hill, November 23, 2011, http://thehill.com/blogs/e2-wire/e2-wire/195393-epa-moves-to-require-fracking-chemical-info-disclosure.
55 U.S. Environmental Protection Agency, Oil and Gas Air Pollution Standards – Regulatory Actions, http://epa.gov/airquality/oilandgas/actions.html.
56 Klimasinska, K., “Fracturing-pollution rule to burden gas producers, API says,” Bloomberg, December 1, 2011, http://mobile.bloomberg.com/news/2011-12-01/fracturing-pollution-rule-to-burden-u-s-gas-producers-api-says.
57 Ball, L., “EPA holds hearing in Texas on natural gas drilling,” Associated Press, September 29, 2011, http://www.businessweek.com/ap/financialnews/D9Q2F1SO1.htm.
58 According to the EPA, The majority of new wells drilled today produce gas, and the majority of those new wells use a process known as hydraulic fracturing or “fracking.” An estimated 11,400 new wells are fractured each year; another 14,000 are re-fractured to stimulate production or to produce natural gas from a different production zone. U.S. Environmental Protection Agency, Proposed Amendments to Air Regulations for the Oil and Natural Gas Industry, http://epa.gov/airquality/oilandgas/pdfs/20110728factsheet.pdf.
59 U.S. Environmental Protection Agency, Regulatory Impact Analysis – Proposed New Source Performance Standards and Amendments to the National Emissions Standards for Hazardous Air Pollutants for the Oil and Natural Gas Industry, July 2011, Table 3-2, Summary of Capital and Annualized Costs per Unit for NSPS Emissions, p. 3-15, http://www.epa.gov/ttnecas1/regdata/RIAs/oilnaturalgasfinalria.pdf.
60 Committee on Energy and Commerce (Democrats), “Waxman, Markey and DeGette investigation finds diesel in hydraulic fracturing fluids,” January 31, 2011, http://democrats.energycommerce.house.gov/index.php?q=news/waxman-markey-and-degette-investigation-finds-continued-us
61 “Bipartisan group of Senators express concern about EPA’s overly broad diesel fuel definition,” U.S. Senate Committee on Environment and Public Works, http://epw.senate.gov/public/index.cfm?FuseAction=Minority.PressReleases&ContentRecord_id=6158116e-802a-23ad-4dad-6
62 Olson, L. and Templeton, D., “EPA to control fracking fluids disposal,” Pittsburgh Post-Gazette, October 21, 2011, http://www.post-gazette.com/pg/11294/1183693-454-0.stm?cmpid=localstate.xml#ixzz1mxszAb2p.
63 Olson, L. and Templeton, D., “EPA to control fracking fluids disposal,” Pittsburgh Post-Gazette, October 21, 2011, http://www.post-gazette.com/pg/11294/1183693-454-0.stm?cmpid=localstate.xml#ixzz1mxszAb2p.
64 Song, L., “Secrecy loophole could still weaken BLM’s tougher fracking regs,” Inside Climate News, February 15, 2012, http://insideclimatenews.org/news/20120215/blm-fracking-chemicals-disclosure-hydraulic-fracturing-proprietary-natural
65 Bureau of Land Management, Land and Mineral Legacy Rehost 2000 System, “Oil and Gas Leases Issued,” http://www.blm.gov/lr2000/. Query Wyoming, Colorado, Montana, California, Utah, New Mexico,

05/27/1946 to 02/14/2012. Tallied acreage held by ExxonMobil, XTO and Aera Energy, which is Exxon's California oil and gas subsidiary.

66 "Waste Reports by Operator," Pennsylvania Department of Environmental Protection, https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByOperator.aspx. Searched Marcellus Shale wells only. Operator: XTO Energy. Period: July to December, 2010. Data were sorted by disposal method, and the number of barrels per type of disposal were tallied. The results indicated that: Brine or Industrial Waste Treatment Plants received 198,622 barrels during the period, while 4,224 barrels were "not determined." Under Waste Facility it is noted that these 4,224 barrels were undergoing "storage pending disposal or reuse."

67 "Waste Reports by Operator," Pennsylvania Department of Environmental Protection, https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Waste/WasteByOperator.aspx. Searched Marcellus Shale wells only. Operator: XTO Energy. Period: July to December, 2011. Data were sorted by disposal method, and the number of barrels per type of disposal were tallied. The results indicated that: Brine or Industrial Waste Treatment Plants received 132,299 barrels and Injection Disposal Wells received 149,522 barrels during the period, while 546 barrels went to "reuse other than road spreading." Under Waste Facility this waste was said to be "reuse of brine to frac a well."

68 "Statewide Data Downloads," Pennsylvania Department of Environmental Protection, https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx. Downloaded data for reporting period "Jan - Dec 2011 (Marcellus Only, 6 months). Data were sorted by disposal method, and the number of barrels per type of fluid waste disposal were tallied for the companies in the Chart (XTO, Atlas Resources, Chevron, Talisman Energy, Range Resources, CNX Gas, Chief Oil and Gas, Chesapeake Energy, Cabot Oil and Gas and Energy Corp. of America. Solid wastes going to landfills (measured in tons not barrels) were not included in this analysis. Only fluid waste, which are the wastes that can be recycled and reused to fracture subsequent wells.

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---

69 Carrol, J., "Worst drought in more than a century strikes Texas oil boom," Bloomberg, June 13, 2011, http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.htm
70 Carrol, J., "Worst drought in more than a century strikes Texas oil boom," Bloomberg, June 13, 2011, http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.htm
71 O'Donnell, C., "Texas drought imposes fracking limitations," Energy & Capital, October 6, 2011, http://www.energyandcapital.com/articles/texas-drought-imposes-fracking-limitations/1822.
72 Gold, R., “Oil’s growing thirst for water,” Wall Street Journal, December 6, 2011, http://online.wsj.com/article/SB10001424052970204528204577009930222847246.html.
73 Ordinance 880-B, An Ordinance of the City of Southlake Texas Amending Ordinance 880-A, Oil and gas well drilling and production of Chapter 95 Article IV of the Southlake City Code, Sec 95243, Operations and equipment practices and standards.
74 Norder, S., “Southlake rules out gas well fracturing during summer months,” Star-Telegram, October 5, 2011, http://www.star-telegram.com/2011/10/05/3420527/southlake-rules-out-gas-well-fracturing.html#storylink=cpy.
75 Brown, L., "Panel wants drilling water recycled," Denton Record-Chronicle, February 7, 2012, http://www.dentonrc.com/sharedcontent/dws/drc/localnews/stories/DRC_drilling_task_force_0207.4515816a7.html.
76 Gold, R., “Oil’s growing thirst for water,” Wall Street Journal, December 6, 2011, http://online.wsj.com/article/SB10001424052970204528204577009930222847246.html.
77 Gold, R., “Oil’s growing thirst for water,” Wall Street Journal, December 6, 2011, http://online.wsj.com/article/SB10001424052970204528204577009930222847246.html.
78 “2010 Financial & Operating Review,” ExxonMobil Corporation, p. 42, 44, http://www.ExxonMobil.com/Corporate/Files/news_pubs_fo_2010.pdf. "Exxon Mobil - XTO Energy,” Eagle Ford Shale, February 1, 2012. It describes that XTO's leases are spread over an area that includes gas wells that produce natural gas only, to ones that produce gas and hydrocarbon liquids, and into the shale oil producing area of the play.
79 Carrol, J., "Worst drought in more than a century strikes Texas oil boom," Bloomberg, June 13, 2011, http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.htm
80 Carrol, J., "Worst drought in more than a century strikes Texas oil boom," Bloomberg, June 13, 2011, http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.htm
81 Carrol, J., "Worst drought in more than a century strikes Texas oil boom," Bloomberg, June 13, 2011, http://www.bloomberg.com/news/2011-06-13/worst-drought-in-more-than-a-century-threatens-texas-oil-natural-gas-boom.htm
82 "Water Use in the Barnett Shale," Railroad Commission of Texas, Last updated January 24, 2011.
83 "Water Use in the Barnett Shale," Railroad Commission of Texas, Last updated January 24, 2011.
84 Souder, E., "Exxon CEO defends natural gas drilling against activists' warnings," Dallas Morning News, May 25, 2011, http://www.dallasnews.com/business/energy/20110525-exxon-ceo-defends-natural-gas-drilling-against-activists-warning
85 Soraghan, M., “Wyoming Natural Gas Fracking Rules for Point the Way for Public Disclosure of Chemicals Used,” New York Times, December 20, 2010, http://www.nytimes.com/gwire/2010/12/20/20greenwire-wyo-natural-gas-fracking-rules-for-point-the-w-18753.html?pagewan
86 Report on Carcinogens, National Toxicology Program, Public Health Service, U.S. Department of Health and Human Services, Twelfth Edition, 2011, accessed 6 July 2011, http://ntp.niehs.nih.gov/ntp/roc/twelfth/roc12.pdf.
87 Hazen and Sawyer, “Final Impact Assessment Report: Impact Assessment of Natural Gas Production in the New York City Water Supply Watershed,” Prepared for the New York City Department of Environmental Protection, December 2009, 36.
88 United States House of Representatives Committee on Energy and Commerce, “Chemicals Used in Hydraulic Fracturing,” April 2011.

89 United States House of Representatives Committee on Energy and Commerce, “Chemicals Used in Hydraulic Fracturing,” April 2011.
90 Colborn, T., Carol Kwiatkowski, Kim Schultz, and Mary Bachran, “Natural Gas Operations from a Public Health Perspective,” Human and Ecological Risk Assessment: An International Journal, Volume 17, Issue 5, September 20, 2011, http://www.tandfonline.com/doi/abs/10.1080/10807039.2011.605662.
91 Horwitt, D. and Theo Colborn, letter to David Patterson, Governor of New York and Michael Bloomberg, Mayor of New York City, August 11, 2008, http://www.awwa.org/files/Publications/WaterWeek/1219434939844.pdf.
92 Urbina, I., “Chemicals were injected into wells, report says,” The New York Times, April 16, 2011.
93 Urbina, I., “Chemicals were injected into wells, report says,” The New York Times, April 16, 2011.
94 “Oil and Gas Compliance Report System,” Pennsylvania Department of Environmental Protection. Search January 1, 2010 to February 13, 2012. Company: XTO Energy Inc. Penalty information tallied from CACP penalties in the downloaded spreadsheet.
95 Kelso, M., “Violations per Well by Operator, Part 2: Bad Actors,” FracTracker, December 12, 2011, http://www.fractracker.org/2011/12/violations-per-well-by-operator-part-2-bad-actors/.
96 Risky Business: An Analysis of Marcellus Shale Gas Drilling Violations in Pennsylvania 2008-2011, Penn Environment Research and Policy Center, February 8, 2012, http://pennenvironmentcenter.org/sites/environment/files/reports/Risky%20Business%20Violations%20Report_0.pdf.
97 Thompson, D., “5 water wells, stream contaminated by methane.” Williamsport Sun-Gazette June 16, 2011, http://www.sungazette.com/page/content.detail/id/565249.html.
98 “PA officials examine report of gas in wells,” The Associated Press, June 17, 2011, http://www.businessweek.com/ap/financialnews/D9NTMPD00.htm.

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---

99 “PA officials examine report of gas in wells,” The Associated Press, June 17, 2011, http://www.businessweek.com/ap/financialnews/D9NTMPD00.htm.
100 “Oil and Gas Compliance Report System,” Pennsylvania Department of Environmental Protection, http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance. Search Date Inspected: 5/28/2010. Operator: XTO Energy. (This case is Enforcement ID: 274602).
101 Personal communication between Lisa Sumi and Daniel Spadoni of the Pennsylvania Department of Environmental Protection, February 15, 2012.
102 Risky Business: An Analysis of Marcellus Shale Gas Drilling Violations in Pennsylvania 2008-2011, Penn Environment Research and Policy Center, February 8, 2012, http://pennenvironmentcenter.org/sites/environment/files/reports/Risky%20Business%20Violations%20Report_0.pdf. Emphasis in the original.
103 Hamill, S.D., “What Fines Reveal About Drilling In State,” The Post-Gazette.com, April 17, 2011.
104 Hagstrom, E., “Hydraulic fracturing litigation is on the rise,” Sedwick LLP, September 2011, http://www.sdma.com/hydraulic-fracturing-litigation-is-on-the-rise-09-19-2011/.
105 Phillip and Peggy Berry vs. Southwestern Energy, XTO Energy, Chesapeake Energy Corporation and BHP Billiton Petroleum (Fayetteville), LLC., U.S. District Court for the Eastern District of Arkansas, May 17, 2011, http://sedgwickmail.com/ve/y81919991n7195jaX/stype=click/OID=611915151251927/VT=0.
106 Snyder, J., “Tainted well lawsuits mount against gas frackers led by Cabot,” Bloomberg, January 30, 2012, http://www.bloomberg.com/news/2012-01-31/tainted-well-lawsuits-mount-against-gas-frackers-led-by-cabot.html.
107 “XTO Energy fracking a natural gas well in White County, Arkansas,” ArkansasFracking, November 17, 2011, http://www.youtube.com/watch?v=2AYlgxSH-qI&feature=share.
108 Sinichak, J., “October Outrage rally protests Marcellus Shale drilling at Marburger dairy farm,” Cranberry Patch, October 8, 2011, http://cranberry.patch.com/articles/october-outrage-rally-protests-marcellus-shale-drilling-at-marburger-dairy-farm.
109 TXSharon, “Hey Dallas, see XTO being a good neighbor in their drilling operations.” Bluedaze blog, October 9, 2011, http://www.texassharon.com/2011/10/09/hey-dallas-see-xto-being-a-good-neighbor-in-their-drilling-operations/.
110 Westmoreland Citizens Marcellus Group Blog, http://westmorelandmarcellus.blogspot.com/.
111 Marcellus Shale: A Citizens View, Citizens Marcellus Shale Commission, October 25, 2011, p. 13, http://www.pikepa.org/Planning/Marcellus/October%2025,%202011-%20Citizens%20Marcellus%20Shale%20Commission%2
112 “XTO/Exxon’s best practices coming to Dallas,” Dallas Area Residents for Responsible Drilling, June 29, 2011, http://dallasdrilling.wordpress.com/2011/06/29/xtoexxons-best-practices-coming-to-dallas/.
113 Brown, R., “Protesters say Big Oil dodges tax on shale gas,” Pittsburgh Post-Gazette, June 11, 2011, http://www.post-gazette.com/pg/11162/1153006-503.stm#ixzz1mJch2Lji.
114 Reilly, S., “Oquaga Creek water withdrawal request draws flood of responses,” PressConnects.com June 1, 2011, http://www.pressconnects.com/article/20110601/NEWS01/106010415/Oquaga-Creek-water-withdrawal-request-draws-f
115 “No gas-drilling water permits in Delaware Basin,” PressConnects.com, December 9, 2011, http://www.pressconnects.com/article/20111209/NEWS10/111209005/No-gas-drilling-water-permits-Delaware-River.
116 “Resolution to postpone the Commission’s consideration of applications for water withdrawals within the State of New York to serve natural gas development activities, pending completion of New York’s environmental quality review Process,” Delaware River Basin Commission, December 8, 2011, http://www.state.nj.us/drbc/library/documents/ResForMinutes12-8-2011.pdf.
117 “Oppose XTO/Exxon’s massive water withdrawal from the Upper Delaware!” Keep Tap Water Safe, May 28, 2011, http://keeptapwatersafe.org/2011/05/.

118 “Public to speak out at Delaware River Basin Commission hearing on XTO Energy bid for frack water withdrawal in Broome County, New York,” Delaware Riverkeeper, May 31, 2011, http://www.delawareriverkeeper.org/resources/PressReleases/PR%20Deposit%20Hearing5.31.11.pdf.
119 Thomas-Blate, J., “Delaware River water withdrawal needs public input,” American Rivers, May 7, 2011, http://www.americanrivers.org/newsroom/blog/jthomas-20110507-delaware-river-water-withdrawal.html.
120 Sinding, K., “Delaware River Basin Commission must say no to water withdrawal for gas drilling,” Natural Resources Defense Council Switchboard, May 5, 2011, http://switchboard.nrdc.org/blogs/ksinding/delaware_river_basin_commissio.html.
121 “NO Water for Exxon Mobil: Stop the rush to frack in the Delaware River Basin!” Citizens Campaign for the Environment, http://www.citizenscampaign.org/alerts/alert-2011-05-e.htm.
122 Galbraith, K., “Resistance to gas drilling rises on unlikely soil,” New York Times, April 23, 2011, http://www.nytimes.com/2011/04/24/us/24ttnaturalgas.html.
123 Welch, C., “XTO gas leak creates vapor cloud in north Fort Worth,” Star-Telegram, December 13, 2010, http://tech.groups.yahoo.com/group/safepipelines/message/17370.
124 Sakelaris, N., “XTO Energy drops plans to drill at Milner Ranch in Southlake,” Star-Telegram, April 26, 2011, http://www.star-telegram.com/2011/04/26/3027935/xto-energy-drops-plans-to-drill.html.
125 Southlake had denied a permit to drill the Joe Wright site, and the town of Keller denied XTO wells. According to the company, “Unfortunately, there is not enough time to re-file our permits before the leases expire.” Without these other drilling prospects, which would have fed into the same pipeline system, XTO decided it did not have a project that would be as competitive as other investment opportunities, so it decided to pull out Southlake. Slade, R., “XTO cancels plans for Southlake drilling,” Community Impact, April 26, 2011, http://impactnews.com/articles/xto-cancels-plans-for-southlake-drilling.

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BUILDING A SAFE, JUST, AND SUSTAINABLE WORLD SINCE 1992

---

126 Galbraith, K., "Resistance to gas drilling rises on unlikely soil," New York Times, April 23, 2011, http://www.nytimes.com/2011/04/24/us/24ttnaturalgas.html.
127 "Specific Use Permit Application for XTO Gas Well, Joe Wright Unit (GAS10-001)," City of Southlake.
128 Michels, P., "At City Plan Commission: Food trucks drive to council, but gas drilling stays parked for now," Dallas Observer, February 17, 2011, http://blogs.dallasobserver.com/unfairpark/2011/02/at_the_city_plan_commission_to.php.
129 Aalund, G. and Findlay, T., "City Council ignored neighborhood's petition," Southlake Drilling Facts, March 26, 2011, http://www.southlakedrillingfacts.com/SouthlakeDrillingFacts.com/Residents_Letters/Entries/2011/3/26_City_Ignored_Neighb
130 McCandless, A., "Keller council denies drill-site request," Star-Telegram, Feb. 16, 2011, http://www.star-telegram.com/2011/02/16/2852748/keller-council-denies-drill-site.html.
131 "City Plan Commission Meeting – XTO's NAS gas drilling permit – Dallas," Dallas Area Residents for Responsible Drilling Blog, September 15, 2010, http://dallasdrilling.wordpress.com/2010/09/15/dallas-city-plan-commission-meeting-xtos-nas-gas-drilling-permit/.
132 Bush, R., "City drilling deal puts council in a predicament," Dallas Morning News, November 8, 2011, http://cityhallblog.dallasnews.com/archives/2010/11/citys-drilling-deal-puts-counc.html.
133 Heinkel-Wolfe, P., "People push Corinth to deny request for 11 drilling variances," Denton Record-Chronicle, April 17, 2010, http://www.dentonrc.com/sharedcontent/dws/drc/localnews/stories/DRC_Corinth_XTO_0417.2556e5722.html.
134 Heinkel-Wolfe, P., "Corinth moves to slow drilling," Denton Record-Chronicle, May 21, 2010, http://www.dentonrc.com/sharedcontent/dws/drc/localnews/stories/DRC_Corinth_Drilling_0521.2344acaf.html.
Heinkel-Wolfe, P., "Striking the balance," Denton Record-Chronicle, March 31, 2011, http://www.dentonrc.com/sharedcontent/dws/drc/specialprojects/drilling/stories/DRC_shaleanalysis_0331.2383c6561.html.
135 "Corinth residents speak out on XTO gas well plans," CorinthCares, May 4, 2010, http://www.youtube.com/watch?v=IbdwEk4Ry64.
136 Heinkel-Wolfe, P., "Residents: No to XTO," Denton Record-Chronicle, April 17, 2010, http://www.dentonrc.com/sharedcontent/dws/drc/localnews/stories/DRC_Corinth_XTO_0417.2556e5722.html.
137 McGraw, D., "Residents upset about gas well sitting next door to daycare," KDAF-TV, March 16, 2010, http://www.the33tv.com/news/kdaf-daycare-gas-well-story,0,7494220.story.
138 Mooney, C., "The Truth about Fracking," Scientific American, November 2011.
139 "Shale Gas Regulation," Energy Institute, The University of Texas at Austin, February 29, 2012, http://energy.utexas.edu/index.php?option=com_content&view=article&id=151:shale-gas-regulation&catid=1:features&Itemid
140 Gold, R., "Faulty Wells, Not Fracking, Blamed for Water Pollution," Wall Street Journal, March 25, 2012, http://online.wsj.com/article/SB10001424052702304537904577277814040731688.html?KEYWORDS=fracking.
141 Hagstrom, E., "Hydraulic Fracturing Litigation is on the Rise," Sedgwick, LLP, September 2011.
142 Smith, J. Z., "Two Lawsuits Contend Groundwater in Barnett Shale Contaminated by Drilling," Star-Telegram.com, December 15, 2010.
143 Efstathiou Jr., J., "Pennsylvania Families Sue Southwestern Energy on Shale Drilling," Bloomberg, September 15, 2010.
144 Lustgarten, A., "Buried Secrets: Is Natural Gas Drilling Endangering U.S. Water Supplies," ProPublica, November 13, 2008, http://www.propublica.org/feature/buried-secrets-is-natural-gas-drilling-endangering-us-water-supplies-1113.
145 "Hydraulic Fracturing Research Study," U.S. Environmental Protection Agency, June 2010, http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf.

146 “Drilling fluid gushes from northern Pa. gas well,” Wall Street Journal, April 20, 2011.
147 Ward Jr., K., “Lawsuits challenge waste dumping by gas drillers,” The Charleston Gazette, April 13, 2011.
148 Junkins, C., “Well Woes Grow: Accidents Leave Nerves Rattled,” The Intelligencer/Wheeling News-Register, September 26, 2010.
149 “DEP Orders EOG Resources to Halt All Natural Gas Drilling Activities in PA,” Pennsylvania Department of Environmental Protection, June 7, 2010.
150 “Independent Report Faults Clearfield County Gas Well Operators for June 3 Blowout DEP Outlines Proper Procedures for All Marcellus Drilling Firms,” Commonwealth of Pennsylvania Department of Environmental Protection, July 13, 2010.
151 Amico, C., Danny DeBelius, Scott Detrow, and Matt Stiles, “Shale Plan Natural Gas Drilling in Pennsylvania,” NPR State Impact, 2011, http://stateimpact.npr.org/pennsylvania/drilling/.
152 Michaels, C., “Fractured Communities,” Riverkeeper, September, 2010.
153 “Shale Gas Regulation,” University of Texas at Austin Energy Institute, February 15, 2012, http://energy.utexas.edu/index.php?option=com_content&view=article&id=151:shale-gas-regulation&catid=1:features&Itemid
154 Sapien J., and Sabrina Shankman, “Drilling Wastewater Disposal Options in N.Y. Report Have Problems of Their Own,” ProPublica, December 29, 2009, http://www.propublica.org/article/drill-wastewater-disposal-options-in-ny-report-have-problems-1229#nyc_wasterwater_updat
155 Sapien J., and Sabrina Shankman, “Drilling Wastewater Disposal Options in N.Y. Report Have Problems of Their Own,” ProPublica, December 29, 2009, http://www.propublica.org/article/drill-wastewater-disposal-options-in-ny-report-have-problems-1229#nyc_wasterwater_updat
156 Oil & Gas Reporting Website, Pennsylvania Department of Environmental Protection, https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/DataExports/DataExports.aspx.

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157 Niquette, M., "Ohio Tries to Escape Fate as a Dumping Ground for Fracking Fluid," Bloomberg, January 31, 2012, http://www.bloomberg.com/news/2012-02-01/ohio-tries-to-escape-fate-as-a-dumping-ground-for-fracking-fluid.html.
158 Lewis, S., "Shareholder Rebuttal to the ExxonMobil Opposition Statement Regarding Hydraulic Fracturing Risks," SEC Challenge, March 2012.
159 Caruso, D. B., "Despite Overhaul, Gas Wastewater Still A Problem," Associated Press, March 12, 2011.
160 Tollefson, J., "Air sampling reveals high emissions from gas field," Nature, February 7, 2012.
161 "EPA Probing Washington County Shale Operations," Post Gazette, http://shale.sites.post-gazette.com/index.php/news/archives/24317-epa-probing-washington-county-shale-operations.
162 Jaffe, M., "Like Wyoming, Utah finds high wintertime ozone pollution near oil, gas wells," Denver Post, February 26, 2012, http://www.denverpost.com/business/ci_20042330#ixzz1ppW8T3yV.
163 Carswell, C. , "EPA aims to clean up polluted air in Western gas fields," High Country News, September 5, 2011, http://www.hcn.org/issues/43.15/epa-aims-to-clean-up-polluted-air-in-western-gas-fields.
164 Jaffe, M., "Like Wyoming, Utah finds high wintertime ozone pollution near oil, gas wells," Denver Post, February 26, 2012, http://www.denverpost.com/business/ci_20042330#ixzz1ppW8T3yV.
165 Lee, M., "SMU prof was right about Barnett Shale pollution," Star-Telegram, June 8, 2009, http://www.smu.edu/News/2009/al-armendariz-fwst-8june2009.
166 Sattler, M., "Leaking Money—Potential Revenues from Reduction of Natural Gas and Condensate Emissions in North Central Texas," May 2011, http://www.scribd.com/doc/56238859/Leaking-Money.
167 Smith, E., "Atmosphere of concern: Residents of Dish feel change in air," The Denton Record-Chronicle, March 28, 2011.
168 Global Community Monitor, "Gassed– Citizen investigation of toxic air pollution from natural gas development," July 2011, http://www.gcmonitor.org/article.php?id=1339.
169 Shindell, D. T. et al., "Improved Attribution of Climate Forcing to Emissions" Science, October 30, 2009.
170 German, B., "Study: Gas from 'fracking' worse than coal on climate," The Hill, April 10, 2011, http://thehill.com/blogs/e2-wire/e2-wire/155101-report-gas-from-fracking-worse-than-coal-on-climate.
171 Howarth RW, Santoro R, and Ingraffea, "Methane and the greenhouse gas footprint of natural gas from shale formations," Climatic Change Letters, DOI: 10.1007/s10584-011-0061-5.
172 Wood, R.,et al., "Shale gas: a provisional assessment of climate change and environmental impacts," The Tyndall Centre for Climate Change Research University of Manchester, January 2011.
173 Myhrvold, N. P. and K Caldeira, "Greenhouse gases, climate change and the transition from coal to low-carbon electricity," Environmental Research Letters, Vol. 7, No. 1, February 16, 2012, http://iopscience.iop.org/1748-9326/7/1/014019/article.
174 Henry, T., "How Fracking, Drilling and Earthquakes Are Linked," StateImpact, February 8, 2012, http://stateimpact.npr.org/texas/2012/02/08/how-fracking-drilling-and-earthquakes-are-linked/.
175 A professor at Cornell's College of Veterinary Medicine and veterinarian investigated 24 cases in five states where ranchers linked hundreds of dead cows to fracking.
176 "Canadian Farmers Call for a Fracking Moratorium," The Marcellus Effect, February 25, 2012, http://marcelluseffect.blogspot.com/2012/02/canadian-farmers-call-for-fracking.html.
177 Smith, S., "Study: Fracking Could Be Killing Farm Animals, Pets," EHS Today, March 12, 2012, http://ehstoday.com/environment/hazardous-waste/fracking-killing-farm-animals-0312/.
178 Adler, R., H.J. Boermans, J.E. Moulton, and D.A. Moore, "Toxicosis in Sheep Following Ingestion of Natural Gas Condensate," Veterinary Pathology, May 2012, http://vet.sagepub.com/content/29/1/11.refs.
179 "Regulations waived for surface, other safety," Hutchinson Kansas, May 7, 2012, http://www.hutchnews.com/Todaystop/Fracking--surface.

180 “KS Senate gives tentative OK to fracking waste,” Associated Press, February 25, 2012, http://6lawrence.com/news/politics/ks-senate-gives-tentative-ok-to-fracking-waste/.
181 Farley, J., “Mario Batali, Bill Telepan Speak Out Against Fracking in New York,” Huffington Post, January 5, 2012, http://www.huffingtonpost.com/2012/01/05/mario-batali-bill-telepan_n_1186743.html.
182 “Treatment of Fracking Wastewater Removes Pesticide… But What About Other Chemicals?” Bay Daily, http://cbf.typepad.com/bay_daily/2011/03/the-50000-gallons-a-day-of-hydraulic-fracturing-wastewater-trucked-from-gas-drilli
183 Jacquet, J., “Wyoming Boomtowns: Social and Economic Impacts Of Natural Gas Drilling” Natural Gas Drilling Workshop, January 12, 2009.
184 Shactman, B., “The Downside of N. Dakota's Oil Boom,” CNBC, February 1, 2012, http://www.cnbc.com/id/46205381.
185 Jacquet, J., “Wyoming Boomtowns: Social and Economic Impacts Of Natural Gas Drilling,” Natural Gas Drilling Workshop, January 12, 2009.
186 “Remorse breeds rebellion against fracking,” New York Times, September 9, 2011, http://green.blogs.nytimes.com/2011/09/23/remorse-breeds-rebellion-against-fracking/.
187 “Loss of Property Value,” Deal Cooper Holton PPLC, http://dchlaw.com/lossofpropertyvalue.
188 Orr, S., “Fracking: Bane or Boon? A Look Into Industry’s presence in Pa.,” The Democrat and Chronicle.com, December 18, 2011.
189 Orr, S., “Fracking: Bane or Boon? A Look Into Industry’s presence in Pa.,” The Democrat and Chronicle.com, December 18, 2011.
190 “Drilling Boom Brings Surge in Crime to Small Towns,” Associated Press, October 26, 2011.
191 “Drilling Boom Brings Surge in Crime to Small Towns,” Associated Press, October 26, 2011.
192 Applebome, P., “Drilling Debate in Cooperstown, N.Y., Is Personal,” The New York Times, October 29, 2011, http://www.nytimes.com/2011/10/30/nyregion/in-cooperstowns-fight-over-gas-drilling-civility-is-fading.html?_r=1.
193 New York Medical Professionals letter to Governor Cuomo, October 5, 2011.

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194 “Regulation Lax as Gas Wells’ Tainted Water Hits Rivers,” New York Times, February 26, 2011, http://www.nytimes.com/2011/02/27/us/27gas.html?pagewanted=4&%2359.
195 “Health Impact fracking studies taking hold with challenges” CBS, March 31, 2012, http://dfw.cbslocal.com/2012/03/31/health-impact-fracking-studies-taking-hold-with-challenges/.
196 Begos, K., “Christopher Portier, CDC Scientist, Says Tests Needed On Gas Drilling Impact,” Associated Press, January 4, 2012.
197 Wayne, A., “Fracking Moratorium Urged as Doctors Call for Health Study,” Business Week, January 18, 2012, http://www.businessweek.com/news/2012-01-18/fracking-moratorium-urged-as-doctors-call-for-health-study.html.
198 Wayne, A., “Fracking Moratorium Urged as Doctors Call for Health Study,” Business Week, January 18, 2012, http://www.businessweek.com/news/2012-01-18/fracking-moratorium-urged-as-doctors-call-for-health-study.html.
199 Lustgarten, A., “Is New York’s Marcellus Shale Too Hot to Handle?” ProPublica, November 9, 2009.
200 “Regulation Lax as Gas Wells’ Tainted Water Hits Rivers,” New York Times, February 26, 2011, http://www.nytimes.com/2011/02/27/us/27gas.html?pagewanted=2&%2334.
201 The New York Department of Environmental Conservation found levels of radium-226, a radioactive derivative of uranium, at up to 267 times the limit for safe discharge when they analyzed 13 samples of hydraulic fracturing wastewater.