

Sand country

**Coulee and river
country**

Buffalo County, Wisconsin
<http://fracsandfrisbee.com/>



Buffalo County, Wisconsin
<http://fracsandfrisbee.com/>

Fairmount Mine WI

44.8860, -91.8696 www.thepriceofsand.com ©2012 Jim Tittle



Outline

- 1) Geology
- 2) Water
- 3) Sand
- 4) Chemicals**
- 5) Gases
- 6) Legal & Economic

Acid
Breaker
Bactericide / Biocide
pH Buffer
Clay Stabilizer / Control
Corrosion Inhibitor
Crosslinker
Friction
Gelling Agent
Iron Control
Solvent
Surfactant



Toxic substances

Benzene

Toluene

Ethylbenzene

Xylene

Kerosene

Diesel fuel

Naphthalene

polycyclic aromatic hydrocarbons

methanol

formaldehyde

ethylene glycol

glycol ethers

hydrochloric acid

sodium hydroxide.

Key paragraphs from the ENERGY POLICY ACT OF 2005

SEC. 322. HYDRAULIC FRACTURING.

Paragraph (1) of section 1421(d) of the Safe Drinking Water Act (42 U.S.C. 300h(d)) is amended to read as follows:

“(1) UNDERGROUND INJECTION.—The term ‘underground injection’—

“(A) means the subsurface emplacement of fluids by well injection; and

“(B) excludes—

“(i) the underground injection of natural gas for purposes of storage; and

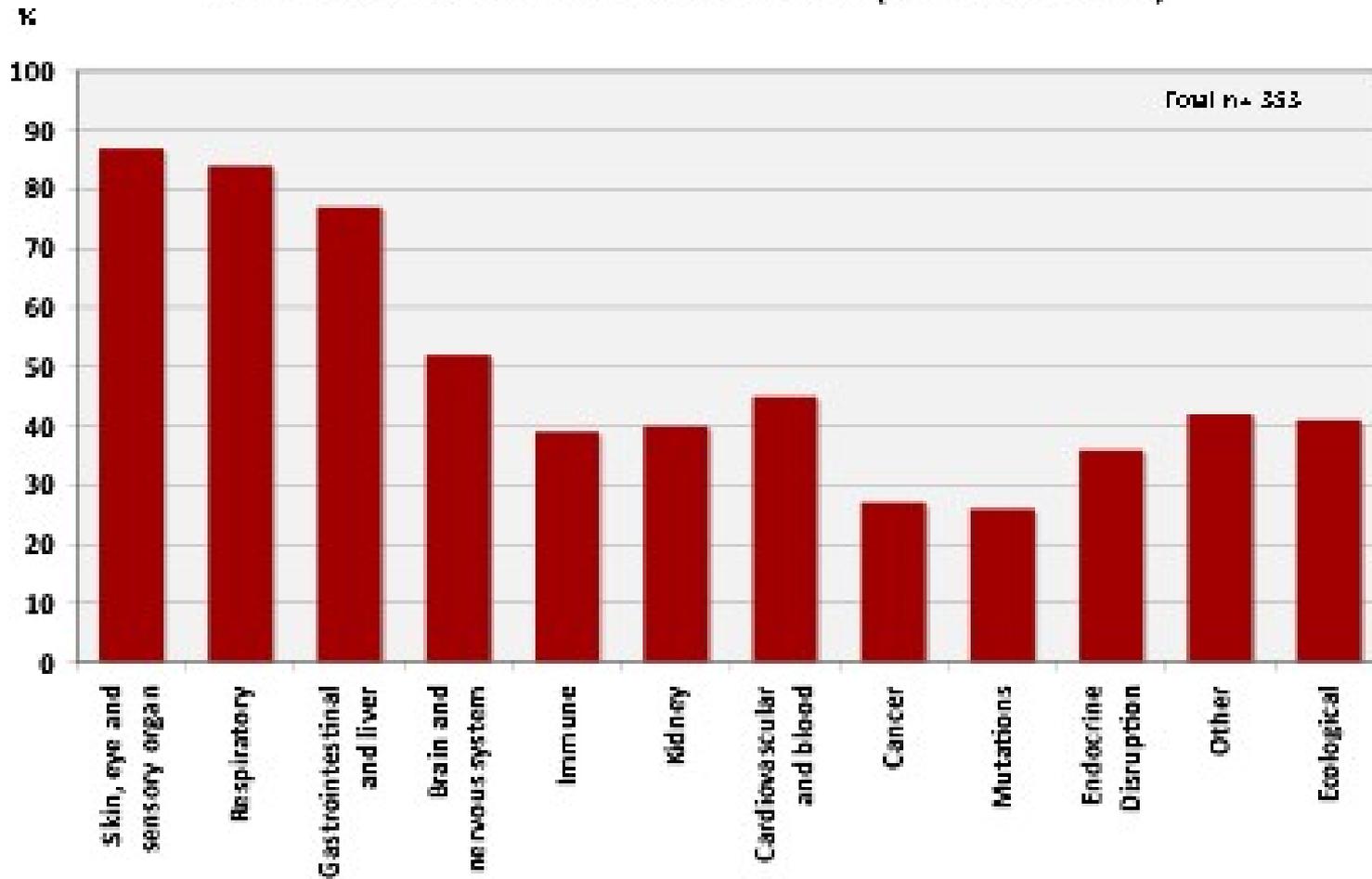
“(ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.”.

SEC. 323. OIL AND GAS EXPLORATION AND PRODUCTION DEFINED.

Section 502 of the Federal Water Pollution Control Act (33 U.S.C. 1362) is amended by adding at the end the following:

“(24) OIL AND GAS EXPLORATION AND PRODUCTION.—The term ‘oil and gas exploration, production, processing, or treatment operations or transmission facilities’ means all field activities or operations associated with exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities.”.

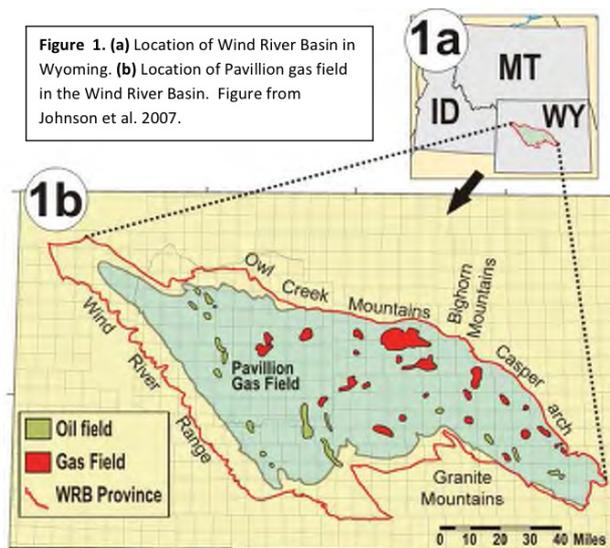
Health Effects Related to Oil and Gas Chemicals (Colborn et al. 2010)



Source: www.endocrinedisruption.com

DRAFT

Investigation of Ground Water Contamination near Pavillion, Wyoming



Found evidence of contamination

In cooperation with the Wyoming Department of Environmental Quality

Groundwater-Quality and Quality-Control Data for Two Monitoring Wells near Pavillion, Wyoming, April and May 2012

USGS Aquifer Tests Near Pavillion, Wyoming Reveal Petroleum-Based Pollutants In Samples

Reuters | Posted: 09/28/2012 7:58 pm



In this May 22, 2009 photo shows John Fenton, a



By Laura Zuckerman

SALMON, Idaho, Sept 28 (Reuters) - Governor

drinking water aquifer near a tiny Wyoming town

concentrations of gases like ethane and propane and diesel compounds, but the

company said it did not cause the contamination. A report by the U.S. Geological Survey showed petroleum-based pollutants in a monitoring well in the aquifer adjacent to Pavillion, Wyoming, which is at the center of a national debate over hydraulic fracturing, or fracking.

A draft study released in December by the Environmental Protection Agency linked the pollution in the underground formation that supplies drinking water to residents

Data Series 718

01.10.12 - 11:09 PM

Fracking Dimock, Again

by Abby Zimet



The all-suffering residents of Dimock, PA. - population 1,368 and enough Cabot gas and oil fracking sites to have poisoned their wells over the last three years - got screwed again this weekend when the federal E.P.A. **said** they'd bring them safe water, and then abruptly **changed** their minds. More [here](#) and [here](#) on Dimock's woeful history.

"These agencies were developed to help us, and they don't," said Jean Carter, whose home is 326 feet from a Cabot well. "We just keep getting hurt all the way around, as if we weren't hurt enough."



Source: commondreams.org

Cracks in the Façade

25 Years Ago, EPA Linked "Fracking" to Water Contamination

Dusty Horwitt, Senior Counsel, Environmental Working Group

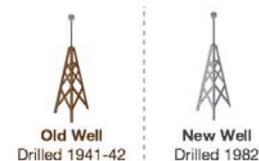
August 3, 2011



www.ewg.org/gas-drilling-and-fracking

EPA Traced Pollution of Underground Water Supply to Hydraulic Fracturing

In 1982, Kaiser Gas Co. drilled and hydraulically fractured a natural gas well on the property of James Parsons in Jackson County, W. Va. The EPA concluded in a 1987 report to Congress that the process contaminated Parsons' water well with fracturing fluid. It is unclear how the "fracking" fluids may have entered the water well, but four old natural gas wells nearby could have been the conduits for contamination.



Jackson County, WV

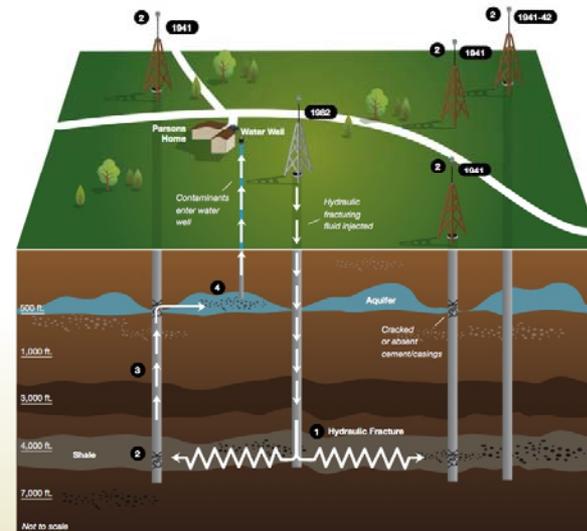


1 Hydraulic Fractures

According to industry studies, hydraulic fractures can extend up to 2,500 feet horizontally, well within range of old natural gas wells near Parsons' property. Studies found that fractures have broken into nearby oil and gas wells and that fracking fluid has migrated up old wells to the surface.

2 1940s Wells Nearby

Four old natural gas wells were located within 1,700 feet of the gas well drilled on James Parsons' property. Each of the wells was "shot," an early fracturing process in which companies detonated explosives inside a well to help access gas or oil deposits.



3 Fluid Migration

Government studies have found that oil and natural gas waste fluids injected underground can migrate up old oil and natural gas wells.

4 Breakout into Aquifer

These fluids can break into aquifers near the surface if the old wells have deteriorated casings, lack cement plugs or contain cracked cement. This phenomenon is known as "salt water breakout." It is possible that hydraulic fracturing fluids migrated in a similar way into Parsons' water well.

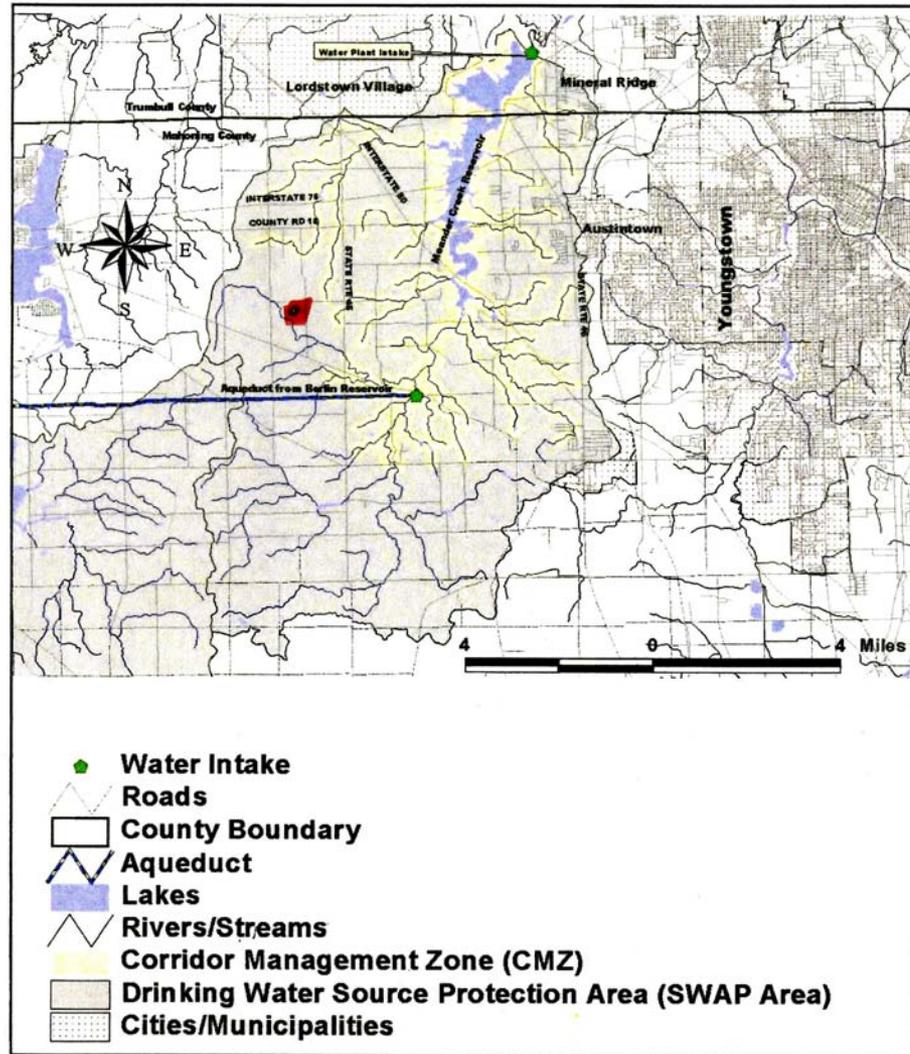


Figure 4 - MVSD Meander Creek Drinking Water Source Protection Area and Corridor Management Zone

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- 6) Legal & Economic

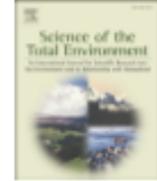


Assaults to Air Quality

(A non-comprehensive list)

- Dust/Silica
 - Volatile Organics from:
 - Condensate Tanks
 - Compressors Stations
 - Rogue gas (escaping gas)
 - Evaporative pits
 - Diesel fumes from:
 - Drilling Engines
 - Large Fracking Pumps
 - Truck traffic (300 to 1300 trucks/fracking)
- Smoke from fires and explosions





Human health risk assessment of air emissions from development of unconventional natural gas resources☆☆☆

Lisa M. McKenzie*, Roxana Z. Witter, Lee S. Newman, John L. Adgate

Colorado School of Public Health, University of Colorado, Anschutz Medical Campus, Aurora, Colorado, USA

Residents living $\leq \frac{1}{2}$ mile from wells are at greater risk for health effects from Natural Gas Development.

Subchronic exposures to air pollutants during well completion activities present the greatest potential for health effects.

The subchronic non-cancer hazard is driven primarily by exposure to trimethylbenzenes, xyl enes, and aliphatic hydrocarbons.

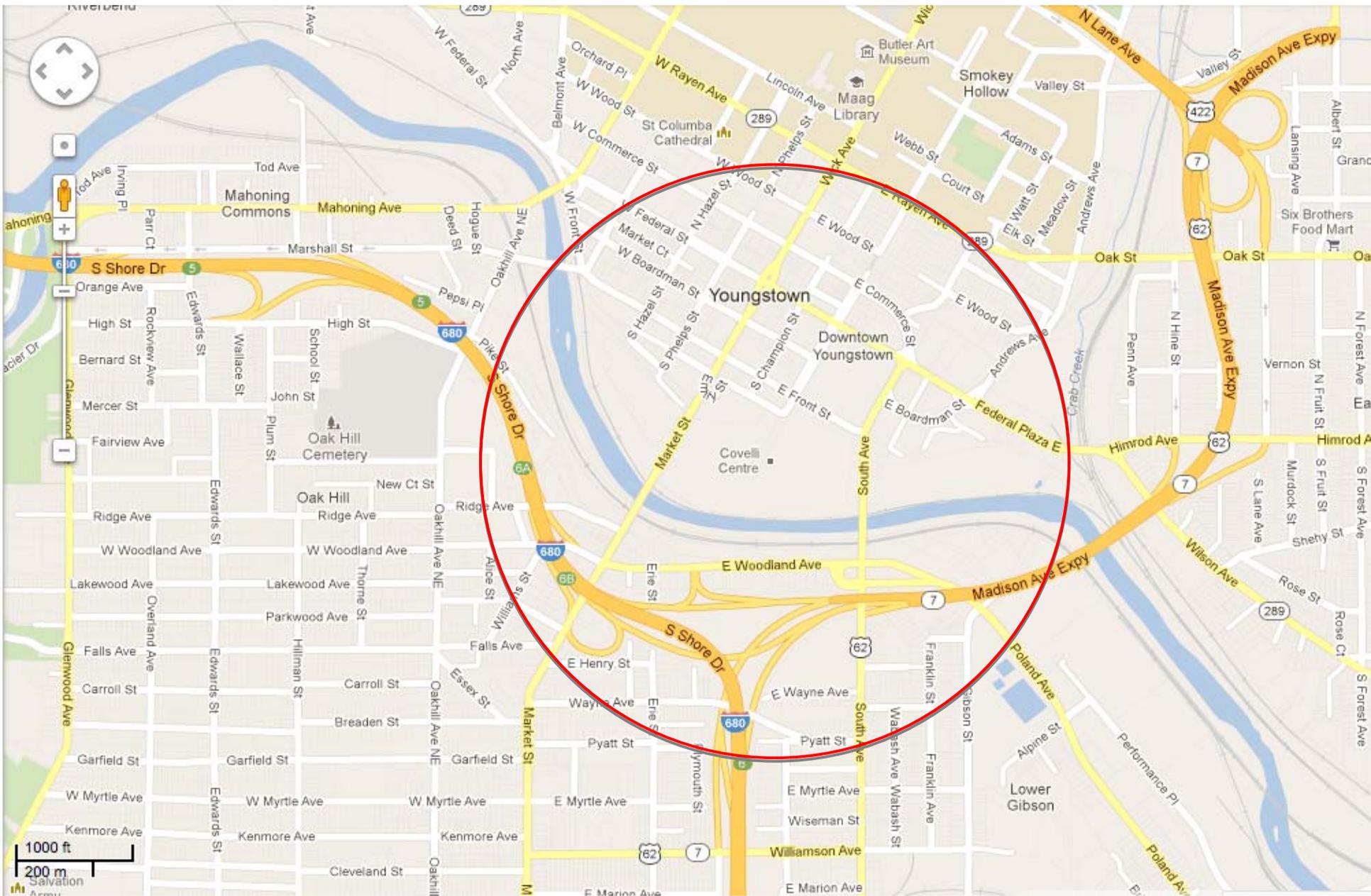
Cumulative cancer risks were 10 in a million and 6 in a million for residents living $\leq \frac{1}{2}$ mile and $> \frac{1}{2}$ mile from wells, respectively

Benzene as the major contributor to the risk.

Hydrogen Sulfide “SOUR GAS” Map

Figure 1. Map of Major H₂S-prone Areas in the Continental United States





Youngstown

Downtown Youngstown

Covelli Centre

Lower Gibson

1000 ft
200 m

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James Browning & Pat Clifford
November 10, 2011

Current members of Congress who voted for the “Halliburton loophole” have received an average of \$73,433 from the industry, while current members who voted against the bill have received an average of \$10,894.

DEEP DRILLING, DEEP POCKETS
IN CONGRESS & OHIO

Figure 11

Top Ohio members of Congress as recipients of fracking money, 2001-2010

Rank	Total	PACs	Individuals	Loophole Vote	Chamber	Party	Name	State	District	Committee
24	186,900	173,500	13,400	In Favor	House	R	Boehner, John A.	OH	8	-
67	91,000	90,000	1,000	Not in office	Senate	R	Portman, Rob	OH		-
107	59,050	55,750	3,300	In Favor	House	R	Chabot, Steve	OH	1	-
126	51,250	48,500	2,750	Not in office	House	R	Stivers, Steve	OH	15	-
174	29,000	29,000	0	In Favor	House	R	Tiberi, Pat	OH	12	-
197	24,000	24,000	0	In Favor	House	R	LaTourette, Steven C.	OH	14	-
195	24,000	24,000	0	Not in office	House	R	Latta, Robert E.	OH	05	En. & Comm.
202	22,000	22,000	0	Not in office	House	R	Austria, Steve	OH	7	-
206	21,100	21,100	0	In Favor	House	R	Turner, Michael	OH	03	-
214	19,700	14,000	5,700	Not in office	House	R	Jordan, Jim	OH	4	-
217	19,000	17,000	2,000	Not in office	House	R	Schmidt, Jean	OH	02	-
235	17,000	17,000	0	Not in office	House	R	Renacci, Jim	OH	16	-
261	13,000	13,000	0	Not in office	House	R	Johnson, Bill	OH	6	-
279	11,000	6,500	4,500	Not in office	Senate	D	Brown, Sherrod	OH		-
345	4,500	0	4,500	Not in office	House	D	Fudge, Marcia L.	OH	11	-
397	2,000	1,000	1,000	Not in office	House	D	Sutton, Betty	OH	13	-
405	1,500	0	1,500	Against	House	D	Kucinich, Dennis J.	OH	10	-
418	1,000	0	1,000	Against	House	D	Kaptur, Marcy	OH	09	-
413	1,000	0	1,000	Not in office	House	R	Gibbs, Bob	OH	18	-
429	500	0	500	Against	House	D	Ryan, Tim	OH	17	-

Figure 13

Ohio's top 20 state-level recipients of fracking industry money

Name	Office	Party	Total 2001-2010
Kasich, John	Governor	R	\$213,519
Republican Senate Campaign Comm.	Senate	R	\$114,750
Ohio House Republican Org. Comm.	House	R	\$95,500
Strickland, Ted	Governor	D	\$87,450
Husted, Jon	Secretary of State	R	\$84,750
Batchelder, Bill	House	R	\$71,195
Niehaus, Tom	Senate	R	\$64,713
Harris, Bill	Senate	R	\$63,095
Taft, Bob	Governor	R	\$50,225
Carmichael, Jim	House	R	\$46,791
Hottinger, Jay	House	R	\$43,370
Hite, Cliff	Senate	R	\$42,760
Petro, Jim	Attorney General	R	\$37,375
Taylor, Mary	Lieutenant Governor	R	\$33,185
Hartmann, Greg	County Commissioner	R	\$32,978
DeWine, Mike	Attorney General	R	\$32,795
Schaffer, Tim	Senate	R	\$32,450
Carey, John	House	R	\$32,350
Amstutz, Ron	House	R	\$30,100
Thompson, Andy	House	R	\$29,500

Secretary of Energy Advisory Board



Shale Gas Production Subcommittee Second Ninety Day Report

November 18, 2011



Table 1. Recommendations ready for immediate implementation

Rec.#	Recommendation	Comment & Status
1.	Improve public information about shale gas operations	Federal responsibility to begin planning for public website. Some discussion between DOE and White House offices about possible hosting sites but no firm plan. States should also consider establishing sites.
2.	Improve communication among federal and state regulators and provide federal funding for STRONGER and the Ground Water Protection Council	Federal funding at \$5m/y will allow state regulators/NGOs/industry to plan activities. Possible minor DOE FY2012 funding; no multi-year commitment. See discussion below.
3	Measures should be taken to reduce emissions of air pollutants, ozone precursors, and methane as quickly as practicable.	We encourage EPA to complete its current rule making as it applies to shale gas production quickly, and explicitly include methane, a greenhouse gas, and controls from existing shale gas production sources. Additionally, some states have taken action in this area, and others could do so as well. See discussion below.
4	Enlisting a subset of producers in different basins to design and field a system to collect air emissions data.	Industry initiative in advance of regulation. Several companies have shown interest. Possible start in Marcellus and Eagle Ford. See discussion below.
5	Immediately launching a federal interagency planning effort to acquire data and analyze the overall greenhouse gas footprint of natural gas use.	OSTP has not committed to leading an interagency effort, but the Administration is taking steps to collect additional data, including through the EPA air emissions rulemaking.
6	Encouraging shale-gas production companies and regulators to expand immediately efforts to reduce air emissions using proven technologies and practices.	A general statement of the importance the Subcommittee places on reducing air emissions. Federal funding at \$5m/y for state regulators/NGOs/industry will encourage planning. Some states have taken action in this area, and others could do so as well.
11	Launch addition field studies on possible methane migration from shale gas wells to water reservoirs.	No new studies launched; funding required from fed agencies or from states. ²
14	Disclosure of Fracturing fluid composition	DOI has announced its intent to propose requirement. Industry appears ready to agree to mandatory stricter disclosure. See discussion below.
15	Elimination of diesel use in fracturing fluids	EPA is developing permitting guidance under the UIC program. The Subcommittee reiterates its recommendation that diesel fuel should be eliminated in hydraulic fracturing fluids.
20	R&D needs	OMB/OSTP must define proper limits for unconventional gas R&D and budget levels for DOE, EPA, and USGS. See discussion below.

Missing from the Table: Role of the Environmental Public Health Community in Governmental Advisory Commissions Related to Marcellus Shale Drilling

Bernard D. Goldstein, Jill Kriesky, and Barbara Pavliakova

Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania, USA

Reviewed advisory committees formed in 2011 by President Obama and governors of the states of Maryland and Pennsylvania

Could identify no individuals with health expertise among the 52 members of the Pennsylvania Governor's Marcellus Shale Advisory Commission, the Maryland Marcellus Shale Safe Drilling Initiative Advisory Commission, or the Secretary of Energy Advisory Board Natural Gas Subcommittee.

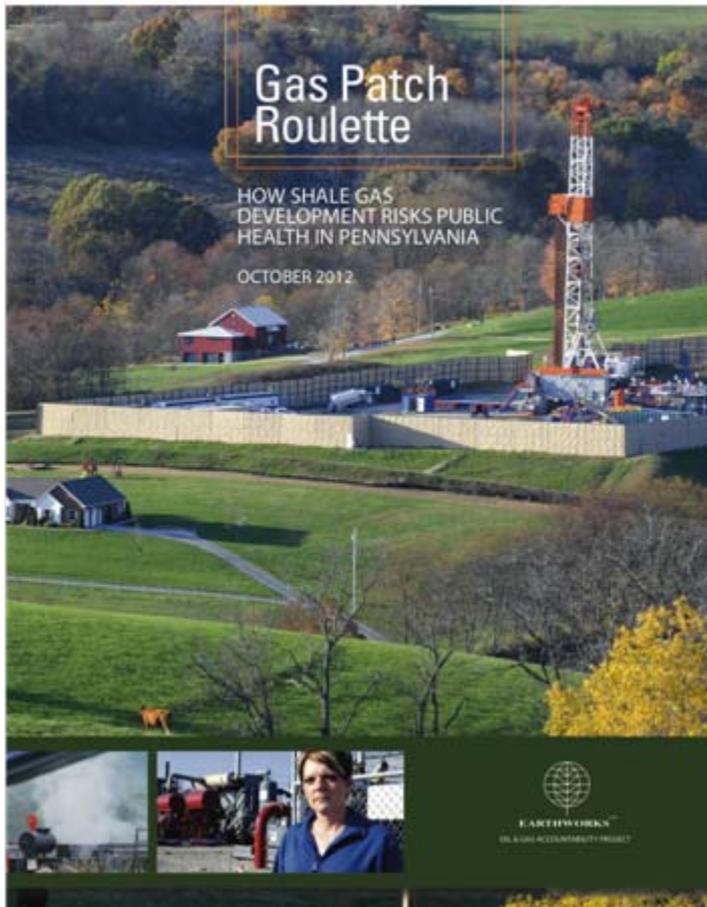
Environmental Health Perspectives
Vol 120 No 4 April 2012

Non-disclosure Agreements

NY Assemblywoman Barbara Lifton shared this statistic: There are over 400 industry vs plaintiff settlements in Washington county PA (heavily drilled area), which have been completely silenced through non-disclosure clauses. With a dangerous public health situation at stake, I do not believe our justice system should allow these non-disclosure settlements.

Surveys of 108 residents of 14 PA counties

Testing of air and water at over half the homes



- 1. Contaminants associated with oil and gas development are present in air and water in many communities where development is occurring.
- 2. Many residents have developed health symptoms that they did not have before—indicating the strong possibility that they are occurring because of gas development.
- 3. By permitting widespread gas development without fully understanding its impacts to public health—and using that lack of knowledge to justify regulatory inaction—Pennsylvania and other states are risking the public's health."

October 20, 2012

After the Boom in Natural Gas

By CLIFFORD KRAUSS and ERIC LIPTON

“We are all losing our shirts today, we’re making no money. It’s all in the red.”

Rex W. Tillerson, CEO Exxon Mobil

Paid \$41 billion for XTO Energy in 2010, when gas prices were almost double what they are today.



Special Report: The casualties of Chesapeake's "land grab" across America

Tue, Oct 2 2012

By [Brian Grow](#), [Joshua Schneyer](#) and [Anna Driver](#)

(Reuters) - Ranjana Bhandari and her husband knew the natural gas beneath their ranch-style home in Arlington, Texas, could be worth a lot - especially when they got offer after offer from Chesapeake Energy Corp.

Chesapeake wanted to drill there, and the offers could have netted the couple thousands of dollars in a bonus and royalties. But Bhandari says they ultimately declined the deals because they oppose fracking in residential areas.

Fracking, slang for hydraulic fracturing, is a controversial method used to extract gas and oil.



"The principle of it is insane, not only can they take your property, but they don't have to pay you for it." Calvin Tillman

Report: EPA Can't Keep Pace With Fracking Surge

Government Accountability Office finds regulators hampered by loopholes and lack of data

GAO

United States Government Accountability Office
Report to Congressional Requesters

September 2012

UNCONVENTIONAL OIL AND GAS DEVELOPMENT

Key Environmental
and Public Health
Requirements

EPA has no information on water before drilling

EPA does not have information on what activities are going on at well sites

EPA must rely on companies to identify themselves as subject to regulations



This presentation available at:
[www . frackfreeamerica . org](http://www.frackfreeamerica.org)

