



Solebury Township, Bucks County

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*Unconventional Shale Gas Development  
And Related Infrastructure*

*Local Considerations*

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Jordan B. Yeager, Curtin & Heefner LLP

[jby@curtinheefner.com](mailto:jby@curtinheefner.com) [www.curtinheefner.com](http://www.curtinheefner.com)

# Presentation Outline

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- Overview of Shale Gas Development
- Zoning Background
- Act 13 of 2012
- Robinson Township, Delaware Riverkeeper Network, et al v. Commonwealth
- General Zoning Considerations



## Cabot Oil & Gas Drill Site

Scranton Times Tribune: <http://thetimes-tribune.com/news/business/marcellus-gas-companies-part-of-evolution-of-drilling-technology-1.1650111>









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[www.wvsoro.org](http://www.wvsoro.org)





# Cecil Impoundment Pre-Construction (2008)

10/16/2008

Switzer Rd

© 2012 Google  
Image USDA Farm Service Agency



Imagery Date: 5/27/2008

1993

40°18'00.50" N 80°13'48.58" W elev 1233 ft

Eye alt 3747 ft

# Cecil Impoundment with Surrounding Earth Movers

7/2/2010  
1993 2010



Imagery Date: 7/2/2010 1993

© 2012 Google  
40° 18' 00.37" N 80° 13' 48.69" W elev 1233 ft

Google earth

Eye alt 2138 ft

# Cecil Impoundment Post-Construction (2010)



Imagery Date: 7/2/2010 1993

40°18'00.50" N 80°13'48.58" W elev 1233 ft

Eye alt 3747 ft

10/16/2008  
1993 2010

# Cecil Township Drill Site (2008)

Image USDA Farm Service Agency

© 2012 Google

Google earth

Imagery Date: 5/27/2008

40°17'28.23" N 80°14'45.85" W elev 1213 ft

Eye alt 2886 ft

3/5/2012

# Cecil Township Drill Site (2010)



Imagery Date: 7/2/2010

40°17'28.23" N 80°14'45.85" W elev 1213 ft

© 2012 Google

Google earth

Eye alt 2886 ft

# Impoundment with Aerators and Drill Site near Hickory, PA



Imagery Date: 7/2/2010 1993

40°19'43.78" N 80°17'52.12" W elev 1238 ft

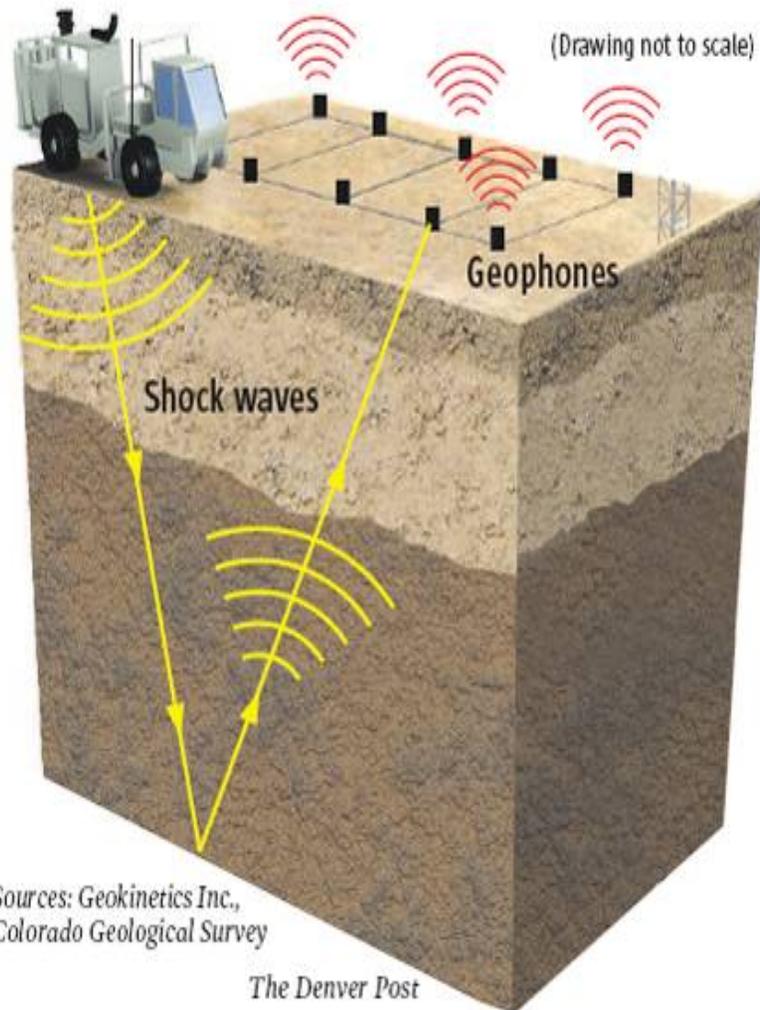
Eye alt 2805 ft

# Completed Site – Robinson Twp.



## Seismic surveying

Seismic surveys are one way drillers search for oil. Large trucks, called "vibrators," shake the ground, sending shock waves deep into the earth. The waves bouncing back are captured by sensors, and signals create a snapshot of the geology.



Sources: Geokinetics Inc.,  
Colorado Geological Survey

*The Denver Post*



# Specific Risks Associated with Oil and Gas Development

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■ “Though they occasionally were able to get close to the pad, Wild Well personnel weren't able to explore enough of the area to locate the missing worker from Houston-based Cameron International Corp.”

Pittsburgh Tribune Review, February 13, 2014

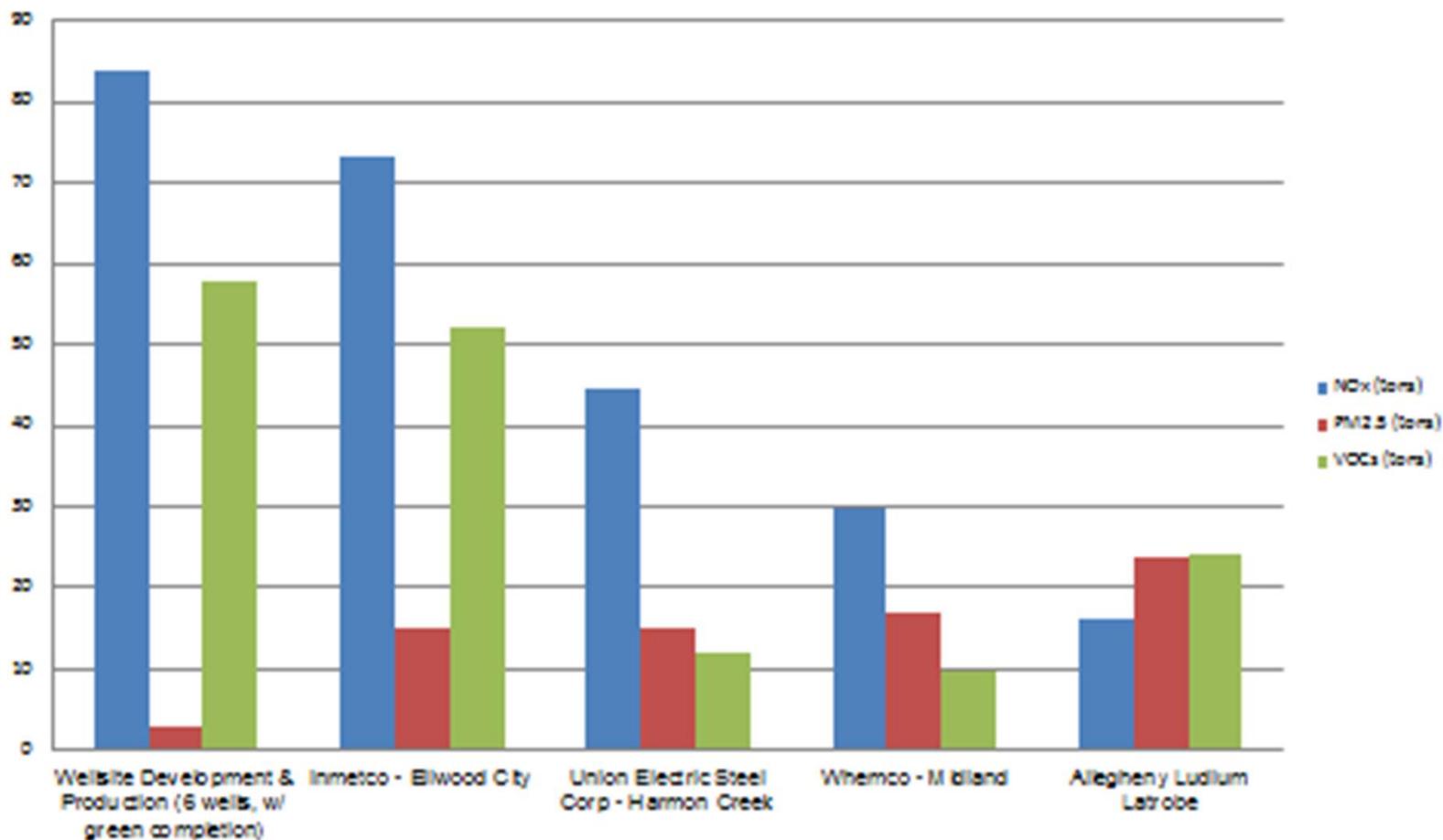


Pittsburgh Tribune Review

WPXI:

<http://www.wpxi.com/news/news/crews-battling-large-gas-well-fire-greene-county/ndKqH/>

**Revised Figure 5 - Well Site Development & Production w/ Roy Table 6 data  
& 2011 EPA Data for Other Industrial Sources**



## **Resources re: Health Effects & Natural Gas Drilling Operations**

### **CHEMICALS USED IN HYDRAULIC FRACTURING**

**Report produced by:**

**United States House of Representatives**

**Committee on Energy and Commerce**

**Minority Staff**

**April 2011**

#### **“Part B. Toxic Chemicals”**

**“The oil and gas service companies used hydraulic fracturing products containing 29 chemicals that are (1) known or possible human carcinogens, (2) regulated under the Safe Drinking Water Act for their risks to human health, or (3) listed as hazardous air pollutants under the Clean Air Act. These 29 chemicals were components of 652 different products used in hydraulic fracturing. Table 3 lists these toxic chemicals and their frequency of use.”**

## Resources re: Health Effects & Natural Gas Drilling Operations

**Table 3. Chemical Components of Concern: Carcinogens, SWDA-Regulated Chemicals, and Hazardous Air Pollutants**

Chemical Component	Chemical Category	No. of Products
Methanol (Methyl alcohol)	HAP	342
Ethylene glycol (1,2-ethanediol)	HAP	119
Diesel <sup>[1]</sup>	Carcinogen, SDWA, HAP	51
Naphthalene	Carcinogen, HAP	44
Xylene	SDWA, HAP	44
Hydrogen chloride (hydrochloric acid)	HAP	42
Toluene	SDWA, HAP	29
Ethylbenzene	SDWA, HAP	28
Diethanolamine (2,2-iminodiethanol)	HAP	14

<sup>[1]</sup> According to EPA, diesel contains benzene, toluene, ethylbenzene, and xylenes. See, EPA, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs* (June 2004) (EPA 816-R-040003) at 4-11.

# Resources re: Health Effects & Natural Gas Drilling Operations

<b>Table 3 Continued</b>		
Sulfuric Acid	Carcinogen	9
Thiourea	Carcinogen	9
Benzyl chloride	Carcinogen, HAP	8
Cumene	HAP	6
Nitrilotriacetic acid	Carcinogen	6
Dimethyl formamide	HAP	5
Phenol	HAP	5
Benzene	Carcinogen, SDWA, HAP	3
Di (2-ethylhexyl) phthalate	Carcinogen, SDWA, HAP	3
Acrylamide	Carcinogen, SDWA, HAP	2
Hydrogen fluoride (Hydrofluoric acid)	HAP	2
Phthalic anhydride	HAP	2
Acetaldehyde	Carcinogen, HAP	1
Acetophenone	HAP	1
Copper	SDWA	1
Ethylene oxide	Carcinogen, HAP	1
Lead	Carcinogen, SDWA, HAP	1
Propylene oxide	Carcinogen, HAP	1
p-Xylene	HAP	1
<b>Number of Products Containing a Component of Concern</b>		<b>652</b>

# Pre-Act 13 – Local Regulation of Gas Development Activities

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- Municipalities required to allow for the “reasonable development of minerals,” in addition to other land uses.
- Municipality could use zoning power to regulate where in community drilling takes place.
- ...couldn't regulate features of operations regulated by state (how)

Gas Well



House



Farm Field



Factory

# Act 13 of 2012

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- Act 13 created a uniform zoning scheme for “oil and gas operations”
  - “Oil and gas operations” - broadly defined
- Required municipalities to allow oil and gas development activities in all zoning districts.

# Act 13

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- Drilling and hydraulic fracturing, including well site construction
  - Permitted by-right in every zoning district
  - In residential districts - could prohibit or allow as a conditional use if wellsite could not be placed such that the wellhead would be at least 500 feet from an existing building

# Act 13

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- Impoundments
  - Permitted by-right in every zoning district, including residential and agricultural
  - 300 ft setback from an existing building
- Compressor stations
  - Permitted by-right in agricultural and industrial districts
  - Conditional use in all other districts

# Constitutional Challenge to Act 13

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- Seven municipalities, two municipal officials
  - Maya van Rossum, the Delaware Riverkeeper
  - Delaware Riverkeeper Network
  - Dr. Mehernosh Khan
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- Challenged Act 13's uniform zoning provisions, incl. Pa. PUC zoning review processes (among other provisions)

# Environmental Rights Amendment – Pa. Const. Article I, Sec. 27

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- “The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment.”
- “Pennsylvania's public natural resources are the common property of all the people, including generations yet to come.”

# Environmental Rights Amendment

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- “As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.”

Pa. Const., Article I, Section 27

# Commonwealth Court Decision

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## Robinson Twp., Delaware Riverkeeper Network, et al v. Com., July 2012

- Act 13's uniform zoning section violates substantive due process, Article 1, Section 1 of PA Constitution.
- Zoning unconstitutional if not “directed toward the community as a whole, concerned with the public interest generally, and justified by a *balancing* of community costs and benefits.”
- “The public interest in zoning is in the development and use of land in a manner consistent with local demographic and environmental concerns.”

# Commonwealth Court Decision

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- Act 13 required changes that
  - “do not serve the police power purpose of the local zoning ordinances,
  - relating to consistent and compatible uses in the enumerated districts of a comprehensive zoning plan.”
- As a result - any local municipal action required by Act 13 “would violate substantive due process as not in furtherance of its zoning police power.”

# Supreme Court Decision

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“....According to the citizens, this dispute is not about municipal power, statutory or otherwise, to develop local policy, but it is instead about compliance with constitutional duties. Unless the Declaration of Rights is to have no meaning, the citizens are correct.”

# Supreme Court Decision

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- “The challenge here is premised upon that part of our organic charter that now explicitly guarantees the people’s right to an environment of quality and the concomitant expressed reservation of a right to benefit from the Commonwealth’s duty of management of our public natural resources.”

# Supreme Court Decision

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- “[T]he citizens seek not to expand the authority of local government but to vindicate fundamental constitutional rights that, they say, have been compromised by a legislative determination that violates a public trust.”

# Environmental Rights are Inherent Rights On Par with Political Rights

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“The Declaration of Rights assumes that the rights of the people articulated in Article I of our Constitution ...are inherent in man’s nature and preserved rather than created by the Pennsylvania Constitution.”

“It is not a historical accident that the Pennsylvania Constitution now places citizens’ environmental rights on par with their political rights.”

# Statewide Environmental Standards Suspect

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- “Imposing statewide environmental and habitability standards appropriate for the heaviest of industrial areas in sensitive zoning districts lowers environmental and habitability protections for affected residents and property owners below the existing threshold and permits significant degradation of public natural resources.”
- “The outright ban on local regulation of oil and gas operations (such as ordinances seeking to conform development to local conditions) that would mitigate the effect, meanwhile, propagates serious detrimental and disparate effects on the corpus of the trust.”

# Municipalities Have a Constitutional Obligations To Protect The Environment

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- “In Pennsylvania, terrain and natural conditions frequently differ throughout a municipality, and from municipality to municipality. As a result, the impact on the quality, quantity, and well-being of our natural resources cannot reasonably be assessed on the basis of a statewide average. Protection of environmental values, in this respect, is a quintessential local issue that must be tailored to local conditions.”

# Local Role in Environmental Protection

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- “The protection of environmental and esthetic interests is . . . a key part of local government’s role.”
- ...“public trustee duties were delegated concomitantly to all branches and levels of government in recognition that the quality of the environment is a task with both local and statewide implications, and to ensure that all government neither infringed upon the people’s rights nor failed to act for the benefit of the people in this area crucial to the well-being of all Pennsylvanians.”

# Limitation on Governmental Authority

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- “The Commonwealth has an obligation to refrain from performing its trustee duties respecting the environment unreasonably, including via legislative enactments or executive action.”
- “As trustee, the Commonwealth has a duty to refrain from permitting or encouraging the degradation, diminution, or depletion of public natural resources, whether such degradation, diminution, or depletion would occur through direct state action or indirectly, e.g., because of the state’s failure to restrain the actions of private parties.”

# Duty to Refrain from Violating Environmental Rights

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- “The corollary of the people’s Section 27 reservation of right to an environment of quality is ***an obligation*** on the government’s behalf to refrain from ***unduly infringing*** upon or ***violating*** the right, including by legislative enactment or executive action.” Id. at 952

# Industrial Uses Belong in Industrial Districts

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- “[A] new regulatory regime permitting industrial uses as a matter of right in every type of pre-existing zoning district [including residential and agricultural] is incapable of conserving or maintaining the constitutionally-protected aspects of the public environment and of a certain quality of life.” 83 A.3d at 979.

# Science-Based Decision Making

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- As a trustee, local governments must consider before acting whether the proposed action (such as legislation or permitting) would cause “actual or likely” “degradation, diminution, or depletion” of the people’s public natural resources either now, or in the future. 83 A.3d at 953, 957, 969, 979-980 & n.46.

# Zoning 101

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- “The very essence of Zoning is the designation of certain areas for different use purposes.”

Swade v. Zoning Bd. of Adjustment of Springfield Twp.,  
140 A.2d 597, 598 (Pa. 1958)

- “[L]awful zoning must be directed toward the community as a whole, concerned with the public interest generally, and justified by a balancing of community costs and benefits.”

In re Realen Valley Forge Greenes Associates, 576 Pa.  
115, 133, 838 A.2d 718, 729, 2003 WL 22971249 (2003)

# Zoning 101

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- “These considerations have been summarized as requiring that zoning be in conformance with a comprehensive plan for the growth and development of the community.”
  - In re Realen Valley Forge Greenes Associates, 576 Pa. 115, 133, 838 A.2d 718, 729, 2003 WL 22971249 (2003)

# Robinson Twp v. Comm.

Commonwealth Court – *en banc* – July 2012

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- “Zoning is an extension of the concept of a public nuisance which protects property owners from activities that interfere with the use and enjoyment of their property.”
- “Land-use restrictions designate ‘districts in which only compatible uses are allowed and incompatible uses are excluded.’”

# Robinson Twp v. Comm.

Commonwealth Court – *en banc* – July 2012

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- “So there is not a “pig in the parlor instead of the barnyard,” zoning classifications contained in the zoning ordinance are based on a process of planning with public input and hearings that implement a rational plan of development.”
- “The MPC requires that every municipality adopt a comprehensive plan which, among other things, includes a land use plan on how various areas of the community are to be used.”
- “The municipality’s zoning ordinance implements the comprehensive plan.”

# Robinson Twp v. Comm.

Commonwealth Court – *en banc* – July 2012

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- “Zoning ordinances segregate industrial districts from residential districts, and there is segregation of the noises and odors necessarily incident to the operation of industry from those sections in which the homes are located.”
  
- “Out of this process, a zoning ordinance implements a comprehensive zoning scheme; each piece of property pays, in the form of reasonable regulation of its use, for the protection that the plan gives to all property lying within the boundaries of the plan.”

# Robinson Twp v. Comm.

Commonwealth Court – *en banc* – July 2012

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- “A property owner is obliged to utilize his property in a manner that will not harm others in the use of their property, and zoning ordinances may validly protect the interests of neighboring property owners from harm.”
- “Zoning ... is to foster the orderly development and use of land in a manner consistent with local demographic and environmental concerns.”