

Commissioners,

My testimony in Wysox was extemporaneous but since I would now like to present several additional issues for you to consider, I shall also include written versions of my 4 original concerns. The wording will differ; hopefully it will be clearer and more complete.

1) harms/benefits analysis

What the gas industry is in the process of building in Pennsylvania is a 10,000 square mile industrial site. This could contain up to 160,000 wells (if they backfill to 40 acre spacing), untold miles of pipeline and an undisclosed number of compressor stations and other infrastructure. Would any modern, civilized society which has the least regard for its citizens allow a project of this magnitude to go forward without a comprehensive harms/benefits analysis?

If we assume that they only drill 80,000 wells and that each well is expected to produce 1% of the pollution that would necessitate an EIS (a figure provided by a PennFuture attorney), this project should entail 800 EIS's, just for the wells. But, thanks to DEP's policy of not looking at cumulative impacts, not one will likely be required. This policy makes about as much sense as concluding that we never need worry about a tsunami because the danger posed by each single drop of water is inconsequential.

Do bear in mind that similar, smaller developments in West Virginia, New York and Maryland will adjoin this massive industrial project. To date most residents have still not been properly informed of its scale or what it entails. This begs the question, are our politicians, to include the previous administration, really so naive or are they complicit in a criminal conspiracy to sneak this monstrosity in without informed public input?

2) questions for industry

Despite claims by both Shell and Range

Resources that they are committed to safety, environmental stewardship and the communities they work in, and that they strive to be transparent, neither has responded to a set of questions I submitted to them; last June and July respectively.

Attached is my current version of that list of questions, slightly expanded and revised. I urge you to see how many of these questions the industry will answer for you. The questions themselves raise a host of issues which should concern you.

### 3) non-disclosure

When people's water is contaminated and the company offers a settlement, it includes a non-disclosure agreement to keep the victim from telling what happened. Probably the best known example is that of Laura Amos in Colorado, which has been fairly well documented in the film Split Estate.

I have personally spoken to two people in Tioga County who claimed that East Resources had contaminated their water and had installed, or was in the process of installing, water treatment equipment in their homes. One of them stated this in front of a group of about 30 residents and I later confirmed with the installer that East had paid for the equipment and installation. One later said he wanted to keep the matter private and the other said the problem was solved and she didn't want to talk about it. Can I prove they signed non-disclosure agreements? No. Do you think they didn't?

Neither of these cases made the press, but 4 others where people or livestock were exposed to water contaminated by Marcellus drilling did, DEP told me about 2 more when I asked - but also confirmed that sometimes the parties reach a mutually agreeable solution without ever notifying DEP - and up to 6 others which I've heard about 2nd or 3rd hand. Details on some of these hearsay reports are very sketchy, so up to 4 may be referring to cases I've already counted. To summarize, I have heard from people

I judge to be credible of between 10 to 14 cases of water contamination in Tioga County. When I brought the question of non-disclosure agreements up with my county commissioners they said, "This is a legal matter, we are not going to get involved."

In one case, a Tiogan was diagnosed with acute heavy metal poisoning. His was prescribed an experimental drug from Norway which he got through the CDC. A Shell Marcellus well was implicated in contaminating his water. Shell offered a settlement.

I do not know this person, but was told the above by someone I consider highly credible who claims to, and who says they got the story directly from him. At the time they spoke the victim was weighing whether to accept Shell's offer, which included a non-disclosure agreement, but didn't see that he had much choice - his medicine is apparently very expensive. This story was later confirmed by two other people whom I also consider reliable and who also claim to know and have spoken to the victim about the incident.

At the 8/23/11 Tioga Board of Commissioners meeting I asked if they had heard about anyone in the greater Wellsboro area coming down with acute heavy metal poisoning. When they said no, I related the facts above and suggested that they look into the matter. At the 9/13 meeting I asked if they had followed up and was told it was a private matter. At the 9/27 meeting they again admitted to have done nothing. Would you have at least asked Shell about this?

Does contaminated water respect property boundaries? Don't drillers have a moral obligation to report water contamination? Why don't they have a legal one as well? Why have DEP and EPA turned a blind eye?

4) betrayal by county officials and prominent citizens  
This industry has caused terrible air

pollution, including ground level ozone in various locations throughout the west, for example in the Jonah-Pinesdale play in Wyoming and the Barnett Shale in Texas. When I asked my county commissioners why we shouldn't expect the same asthma levels as in the Barnett Shale - 25% vs 7% statewide for certain age groups - their reply was straight out of the tobacco industry's playbook, "Can you prove it was the gas drilling?" (Actually, an SMU study determined that gas drilling was responsible for 1/2 the pollution in the area, so there is every reason to believe it contributes significantly to the high asthma rate.)

This document, [http://www.tiogapartners.org/docs/2011\\_Tioga\\_County\\_Community\\_Compact.pdf](http://www.tiogapartners.org/docs/2011_Tioga_County_Community_Compact.pdf), was recently unveiled by the Tioga County Partnership for Community Health. I denounced it as pure puffery when the Tioga County Commissioners voted to endorse it. While I'm not a lawyer, it is quite clear that there is nothing legally binding in it and it does not address a single concrete problem with gas drilling. It is in short no less than propaganda to convince the naive that the gas industry is responsible and caring. This is typical of the rose tinted view of the gas rush presented by the powerful and influential in the county.

#### 5) water specialists

Here are 3 excerpts from an email sent to me in 2010 by a water specialist working in Northcentral Pennsylvania.

\* "So in the interest of feeding my family, I try to not publicly align against the gas companies."

\* "But, I see so many problems with the whole process. Those of us in the ground water industries are really concerned, even if you can forget about the contamination possibilities, the amount of water withdrawn from the water table is almost devastating, especially in a year with so little recharge. There needs to be more third party oversight, gas companies being allowed to run virtually

unregulated for years has given them an attitude that they know what's best, and we don't know crud."

\* "The people in my industry think it's criminal what the gas companies do, but property owners see that money, and caution goes to the wind."

I urge you to solicit comments in confidence from certified water specialists. I believe they are very justifiably afraid of backlash for openly speaking out, not only from the gas industry, but also from powerful neighbors who stand to make a killing.

6) 20 answers

Attached is then DEP Secretary Hanger's response to a set of questions I presented to Governor Rendell on behalf of Citizens Concerned about Natural Gas Drilling when he visited Wellsboro on 8/27/2010.

7) honest answers?

In August 2009, Schlumberger held an open house in Horseheads, NY where they were opening a large facility. I asked one of the two frack experts how they knew gas released by fracking wouldn't find natural faults to follow to the surface. He responded, "Well, why hasn't it migrated to the surface over the millions of years its been down there?" I said, "Maybe because it's been trapped inside the shale you're fracturing in order to get it to flow into your well."

After a moment or so I realized that he was not going to offer any further explanation, so I ask if he had any idea what had gone wrong with the well in Dimock eight months before. He said he'd never heard of any problems but he'd only come up from Texas for the open house. So he asked his colleague, who'd been in charge of their Marcellus operations for about a year. He also hadn't heard of any problems in Dimock.

As the Brits say, "Pull the other, it's got bells on." At least neither of them said he'd never heard of Cabot.

8) informed consent

Attached is a copy of the lease East Resources offered my wife and me. There are numerous parts which I find very troubling but none more so than the section on extension of term. As I read it, East, at its sole discretion, can extend the primary term by a period equal to the original term. So, what looks at first glance like "East can extend the lease for another 5 years" can actually be interpreted as "East may at any time double the remaining primary term of this lease." In other words, this may well be a lease in perpetuity.

Would that stand up in court? I don't know, but I can well imagine some unfortunate widow being intimidated into believing it would after East's lawyer explained it to her.

When I mentioned this provision at a seminar on Marcellus leasing, a woman, who turned out to work for Talisman, piped up with, "Oh, we cross that provision out from our leases." Which begs the question of what such egregious language is doing in a boilerplate lease to begin with? Would anyone in their right mind truly give informed consent to such nonsense? Unfortunately, I fear our courts might think so. Why has the state failed to ensure that boilerplate leases are fair? Why isn't it protecting its citizens?

9) how thoroughly is each well inspected?

In Wysox a gentleman, I believe his name was Miller, who owns a company which builds well pads and preps used drilling muds for disposal stated that DEP inspects his sites several times a week. Given the number of DEP inspectors and the number of wells for them to inspect, I am highly skeptical of that claim. Perhaps you should check with DEP to see how much time it spends inspecting each well.

10) preexisting conditions

When people's water is contaminated, the gas industry's first line of defense seems

to be to claim, "preexisting condition" -  
you can watch Penn State's Terry  
Engelder admit that such "lying ... is just  
part of the process" at about minute 7 of  
this video,

<http://shaleshockmedia.org/2011/01/30/2-engelder-cumulative-environmental-effects-of-gas-drilling/> .

Do contaminants from drilling bio-accumulate in hair or nails? Can samples provide an estimate of when exposure began? Where can victims have such an analysis done? Would it stand up in court?

Thank you for your consideration and for undertaking what our elected officials should be doing, looking out for the public interest. If I can be of any assistance in your endeavor, please do not hesitate to ask.

John Kesich  
628 Bailey Creek Rd  
Millerton PA 16936  
570-549-2286

### **----- Project Accountability – questions for industry 2.0**

As a good corporate citizen will you send an open letter to Congress and the President urging them to end all subsidies and exemptions for Oil and Gas? If not, please justify your subsidies and exemptions.

Are you required to have a regulator or independent third party perform a chemical analysis of flowback, produced water and other chemicals (FPO) from your wells? If not, please explain why you should not be required to do so.

Are chemical profiles of your FPO available to the public? If not, please justify that.

What percentage of your wells produce FPO which would be regulated as hazardous by the EPA under the Resource Conservation and Recovery Act if it originated somewhere other than an oil or gas well?

What does it cost to handle, store, transport and dispose of FPO as residual waste? What would it cost if it were classified as hazardous waste?

Do you store any FPO in open pits? If so, what is your

timeline for transitioning to steel tanks and are you currently building, or will you build, any new FPO storage pits? Will you grandfather existing pits or replace them with steel tanks?

How radioactive are the materials from the Marcellus shale? In particular, please discuss the dangers from ingesting or breathing in these radionuclides.

A gas well produces about 1% of the air pollution which would require an EIS. We can expect about 8,000 wells in Tioga County alone. In other words, not even considering pipelines, compressors and other facilities, or pollution originating up wind, we're getting the equivalent of 80 projects which would require an EIS but, since the PA DEP does not take cumulative impacts into account, not even one will be done. Would you care to comment?

What percentage of your wells undergo green completions as opposed to being flared? When will you phase out flaring? Have you called on federal and/or state regulators to mandate green completions? Why not?

By what percent would the cost of drilling a well increase if you were required to pay for baseline testing of aquifers and surface water within one mile of your production unit? Please assume only one test would be required for any location and that cost sharing among production units would take place. Aside from cost, do you have any objections to such testing? Have you called on DEP to mandate it?

How many wells do you currently have in Tioga County and PA? How many nondisclosure agreements have Tiogans and Pennsylvanians signed with your company? How many allegations of water impacted by your operations have there been in Tioga County and PA? How many allegations of serious health impacts such as heavy metal poisoning? How many water treatment systems have you paid for? How many households have you had water delivered to?

DEP statistics show that methane migrations occur 5 times more frequently at Marcellus wells than at traditional wells, why is that? Is this acceptable? And why shouldn't we worry about it?

According to the DEP, about 1 in 150 Marcellus wells have been implicated in a serious health or environmental problem. Do you think that is an acceptable rate? If not, what are you doing about it?

What do you have to say about Cabot and their defective wells in Dimock? Are they a rogue company? If not, why shouldn't we expect similar problems with your wells?

What is the failure rate over time for your well casings?

While the current PA minimum royalty of 12.5% was codified in the 1980's, haven't royalty rates been relatively flat for over 100 years? As far as I can see, the only justification for drillers getting more than 50% of the wellhead price is to offset the risk of dry wells. Hasn't the industry's success rate improved over the past 30 years? If so, why is 12.5% still an acceptable minimum royalty? Please provide data from which a fair royalty can be calculated.

When did the industry realize that the Marcellus would be producing large amounts of gas? Were there leases signed where insiders took advantage of this information before the public knew about it? Do you see that as a problem? If so, what do you propose to do to correct it?

In the West, gas fields - for example, the Barnett and Jonah-Pinedale - have caused terrible air pollution including ground level ozone. Why shouldn't we expect the same here? Why shouldn't we expect 25% of kids to develop asthma as in the Barnett Shale as opposed to 7.1% statewide in Texas?

PA and NY have very few injection disposal wells; the geology is not suitable. Why then did the industry try to get a disposal well permitted in Pultney, NY? Can you explain the difference between an injection disposal well and a gas well where 80% of the toxic frack chemicals allegedly remain in the ground?

Through 2011 DEP allowed frackers to dispose of waste at municipal sewage treatment plants; this caused numerous problems; most notably elevated salt in the Monongahela, which resulted in a massive fish die off and forced nearly 100,000 people to use bottled water. Surely industry experts, to say nothing of DEP, understood that these plants are not equipped to deal with this waste. What did you do to oppose this ill-conceived policy? Is your industry's pro-safety and pro-environment rhetoric merely propaganda?

The EPA justified the Halliburton loophole that allows drillers not to disclose the chemicals they inject because nearly all of the frack fluid supposedly returned to the surface. Now, in the Marcellus, 80% allegedly remains in the ground. Why hasn't the Halliburton loophole been revisited?

What do you have to say about green chemistry such as Schlumberger's GreenSlurry?

At least some drillers have said they are willing to

voluntarily disclose the chemicals they use but I have yet to hear of a driller calling for mandatory disclosure (ie closing the Halliburton loophole). Is that because voluntary disclosure entails no penalty for failure to disclose?

Drillers blame their suppliers for refusing to disclose what is in their products. Isn't this just self-serving finger pointing? Why don't drillers simply adopt a policy of only buying products with fully disclosed ingredients?

The foam oozing from a well near Waterville in 2010 was identified as Air Foam HD, whose active ingredient is 2-butoxy ethanol; a potent carcinogen commonly referred to as 2BE. Why do neither Air Foam HD nor 2BE appear on the list of chemicals industry provided DEP? And why was 2BE used during the initial drilling, that is to say, before installation of a casing to protect groundwater?

Do you require workers to work more than an eight-hour shift? Do you require that they pull a second shift if their replacement fails to show up? How do such policies impact performance and safety? Do you require workers to be on standby without pay? Do you require subcontractors to have at least the same policies as you do? What have you done to ensure that all gas companies honor your minimal worker protections? Surely you can't and don't want to compete against companies that exploit their workers.

What the gas industry is planning for PA is nothing less than a 10,000 square mile industrial zone. Would a responsible advanced society allow such a project to go forward without a comprehensive harms/benefits analysis? What have you done to get DEP to undertake such a study? Would you call on the Governor to impose a moratorium on new wells until it is completed?



# Pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECRETARY

September 27, 2010

Mr. John Kesich  
628 Bailey Creek Road  
Millerton, PA 16936

Dear Mr. Kesich:

I would like to commend you and your organization, Citizens Concerned About Natural Gas Drilling, for your interest in our environment, protecting our waters, and seeking answers to your questions about natural gas drilling.

Over the last two years Governor Rendell directed the hiring of 105 additional employees for oil and gas staff at the Department of Environmental Protection (DEP), which more than doubled the number of state employees regulating Pennsylvania's gas industry. DEP has also implemented new regulations and permitting requirements to protect our waters. On August 21, 2010, both Chapter 102, the "Buffer Rule" and Chapter 95, the "IDS Rule" were published as final regulations. The Buffer Rule requires riparian buffers of 150 feet on the Commonwealth's most pristine waters designated as High Quality and Exceptional Value. The TDS Rule, requires that industrial wastewater, including gas drilling wastewater, be treated to drinking water standards for total dissolved solids (TDS) prior to discharge to our streams and rivers.

DEP has also implemented Water Plan requirements as part of the permit approval process, requiring an operator to identify how water will be managed on each well site including; the point of water withdrawal, amount of water used to frac the well, and the treatment or disposal methods of the wastewater generated. DEP has also been completing work on Chapter 78, which includes new cementing and casing requirements that will substantially reduce gas migration problems, protecting homeowners and water supplies. Chapter 78 will be voted on as a final rulemaking by the Environmental Quality Board on October 12, 2010.

The enclosure contains answers to your "20 Questions" delivered to Governor Rendell on August 27, 2010. If you have any questions, please contact Duke Adams, Acting Director for DEP Policy Office, by e-mail at [ranadams@state.pa.us](mailto:ranadams@state.pa.us) or by telephone at 717.783.8727.

Sincerely,



**ft**

John Hanger  
Secretary

Enclosure

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20 Questions from the Concerned Citizens About Natural Gas Drilling to Governor  
Edward G. Rendell; with Responses Provided by DEP

*1) As good corporate citizens would gas companies sign an open letter to Congress asking that all Oil & Gas exemptions to federal regulations be rescinded? If fracking is as safe and benign to the environmental as industry claims, why do they need exemptions? Is this venture only profitable by passing onto the public liabilities which industry should rightly shoulder? Why can't Gas play by the same rules as everyone else? (Scott Blauvelt, general manager of environmental health and safety for East Resources answered, " We couldn't do that. " When asked why not, he said, "We just couldn't do that. ")*

Pennsylvania state law provides drillers no exemptions from the Clean Streams Law and the Oil and Gas Act. Pollution by drillers of either surface waters or groundwater in Pennsylvania violates state law, no matter what protection federal law provides or does not provide our waters. Further we have tightened state law by requiring for the first time in the long history of the Pennsylvania gas industry the treatment of drilling wastewater for Total Dissolved Solids (TDS) to the Safe Drinking Water Standard. The TDS rule also regulates other sources of TDS pollution as well. The TDS rule became effective on August 21, 2010. In addition we have successfully passed a rule mandating a 150 foot buffer from all development for Pennsylvania's High Quality Streams. More than 20,000 miles of streams in Pennsylvania have that classification or about one-quarter of all streams. We have also required since 2008 that all applications to drill include a completed water plan that details where water would come from and judges the withdrawal against a protective standard that assumes a stream is at low-flow conditions. Finally on October 12, 2010, the Environmental Quality Board (EQB) will vote on the Final Rule for Drilling Standards that will greatly strengthen the standards for cementing, casing, and other drilling practices. This important rule then goes to the Independent Regulatory Review Commission for a vote in November 2010. Pennsylvania state law has been greatly

strengthened in part because we cannot rely on the federal government to protect our waters as the disaster in the Gulf demonstrates painfully.

*2) Would drillers sign an open letter calling on Harrisburg to implement proper inspections as well as comprehensive monitoring of air, soil and water, funded by a reasonable severance tax?*

The severance tax is vital. Governor Rendell and I are pushing hard to have it passed. The Pennsylvania State Senate will be crucial on whether a reasonable tax or a giveaway to the industry is passed.

In 2008, DEP successfully passed a rule to raise fees substantially to apply for a drilling permit. The application fee was set in 1984 at \$100. It had never been raised as fee increases are often opposed by industries that pay them. The new fees are \$5,000, \$10,000 or more for deep Marcellus wells and are generating about \$10 million per year. All revenue is invested to increase monitoring and oversight of the oil and gas industry. In 2009, I directed the hiring of 37 additional employees for oil and gas staff. The Governor again in 2010 directed the hiring of an additional 68 oil and gas employees,

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*which combined with 2009 hiring more than doubled the number of state employees regulating Pennsylvania's gas industry.*

*Since January 2010, DEP oil and gas inspectors and water quality specialists have performed 2,863 inspections on Marcellus wells. The inspections include monitoring for the proper construction of the well, water use plan, waste management, and erosion and sedimentation controls for the well site. As of September 3, 2010, DEP has issued 816 violations and completed 221 enforcement actions on Marcellus wells this year.*

*3) Would they call for a moratorium until DEP mandates best practices? For example, green completions instead of flaring, banning open pits for flowback and installing pipes (alongside the collector pipelines) to transport water rather than trucking it?*

*Governor Rendell supports the bill that passed the House of Representatives imposing a 3-year moratorium on further drilling on state forest but does not support a moratorium on drilling on private lands.*

*The DEP is updating existing requirements regarding the drilling, casing, cementing, testing, monitoring and plugging of oil and gas wells, and the protection of water supplies. On October 12, 2010, the final Best Drilling Practices rule comes to the EQB for a vote. The proposed modifications include updated material specifications and performance testing and revised design, construction, operational, monitoring, plugging, water supply replacement, and gas migration reporting requirements. With this rulemaking, the DEP is adding additional measures that will further minimize the concerns associated with gas migration and will provide an increased degree of protection for both public and private water supplies.*

*The updated casing and cementing requirements will provide an increased degree of protection for homeowners and water supplies.*

*There have been problems caused by poor pit construction, and DEP has put extra enforcement resources into inspecting pits. Some companies have moved to tanks only. DEP is now considering changes in policies concerning pits. The DEP also continues to require water management plans for all water sources utilized for each hydraulic fracturing project in the Commonwealth. Such plans are necessary to maintain and protect surface and groundwater resources.*

4) Would they call on the PA Department of Justice to seek out and challenge predatory leases? Industry knew that the Marcellus would change the rules of the game at least 5 years ago; the public was not informed. Isn 't that a form of insider trading?

*I agree that some of the early leases did reflect an imbalance in negotiations. We have urged landowners to obtain good legal advice before signing anything. We also*

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constantly remind landowners that drilling is industrial activity with costs that are regulated but not zero. In Pennsylvania, landowners with unleased mineral rights are protected to some extent by the Guaranteed Minimum Royalty Act, 58 P.S. § 33, which provides that "[a] lease or other such agreement conveying the right to remove or recover oil, natural gas or gas of any other designation from lessor to lessee shall not be valid if such lease does not guarantee the lessor at lease one-eighth royalty of all oil, natural gas or gas of other designations removed or recovered from the subject real property."

*5) Industry is giving away lots of money to buy good will (East donated \$50,000 to the Tioga 4H). Would they give each county where they operate at least one of those fancy IR cameras which can document emissions? How about supporting a severance tax so the state could afford to buy them and hire staff to use them?*

In 2008, DEP raised fees substantially to apply for a drilling permit. The application fee was raised from \$100 to now \$5,000, \$10,000, or more for deep Marcellus wells. All revenue was invested to increase monitoring and oversight of the oil and gas industry. DEP has bought 5 IR cameras. Governor Rendell and I both support a Pennsylvania Severance Tax that is modeled after what West Virginia has enacted.

*6) How many gas executives live in, or downwind/downstream from, the massive (10,000+ square miles in PA) industrial complexes they are creating without an EIS or a comprehensive harms/benefits analysis?*

DEP does not know how many executives live nearby drilling. However, DEP is aggressively enforcing often new or strengthened rules to reduce emissions and costs. Air emissions from this industry are regulated as well. Inspectors conduct routine and unannounced inspections of drilling sites and wells statewide. DEP has issued fines. DEP has withheld permits. It has issued orders to stop drilling and fracking. It has required wells to be fixed or plugged. It has required companies to clean up. The industry requires strong regulation.

*7) Since industry claims to support disclosure of frack chemicals, what is its objection to closing the Halliburton loophole to the Safe Drinking Water Act, which would restore mandatory disclosure? Isn't the "voluntary disclosure" industry favors meaningless since there would be no penalty for failure to disclose, disclosing an incomplete list or even falsely claiming full disclosure?*

I support all efforts to require full disclosure of information about the fracking process, including chemicals. The rulemaking proposed by the DEP in June 2010 would significantly enhance the required reporting requirements, the construction and the operation of wells. Some of the additional reporting requirements include: a descriptive list of all additives used in the fracking/stimulation fluids; the percent by volume of each

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chemical additive; a list of chemicals in Material Safety Data Sheets (MSDS), by name and Chemical Abstract Number; the percent by volume of each chemical listed in the MSDS sheets;

and the total volume of the base fluid. DEP has put on its Web site since 2008 information it has obtained about chemicals used in the fracking process and recently updated this information.

*8) Will the industry discuss forced pooling honestly?*

Pooling is an important issue that should be determined on its own merits and discussed honestly by all sides. Pooling without mandatory spacing of wells and without full compensation for mineral owners is a non-starter. Spreading out the wells to limit impact on communities is important and a mandatory spacing requirement would help protect the environment and communities.

*9) For every dollar a landowner gets in royalties, at least four end up in the pockets of gas executives and Wall St speculators. Is that fair? If so, why? If not, what would be an equitable sharing of gas profits? Don't the current minimum royalties date back to the 1800 's and reflect the success rate then rather than current reality? Have there been no advances in geologic understanding and prospecting technologies?*

The Guaranteed Minimum Royalty Act, 58 P.S. § 33, was approved on July 20, 1979. We also strongly advise landowners to negotiate for higher royalties and many have been successful in doing so.

*10) Can industry frack with enough accuracy to actually respect property boundaries? What on-line resources are there -which document state-of-the-art fracking accuracy? How large a safety margin should be allowed to responsibly frack only what is leased but not an unleased neighbor? What regulations are in place to properly compensate landowner whose unleased property is fracked?*

Hydraulic fracturing techniques have been refined through years of development in other shale gas plays, notably the in Barnett Shale in Texas. Today, well stimulation in the Marcellus Formation, as well as other reservoirs in Pennsylvania is a highly specialized operation that utilizes computer simulation/modeling to design the fracing process, develop specifications on the volumes of fluid and proppant to use, calculate the pressure required, and determine the composition of the fracing fluid. This data is integrated with lithologic and other characteristics unique to the formation, such as depth, temperature and thermal maturity, and the structural characteristics of the shale.

Other than spacing for wells in coal areas pursuant to the Coal and Gas Resource Coordination Act, 58 P.S § 501.1 *et seq.*, and spacing for wells under Oil and Gas Conservation Law, 58 P.S. § 405, Pennsylvania places no restrictions on well location in

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*proximity to tract boundaries for development of oil or gas. Instead, the law of capture applies. The rule of capture states that there is no liability for drainage of oil and gas from under the land of another so long as there has been no trespass and the individual observes all relevant statutes and regulations.*

*The issue of whether drainage of natural gas from neighboring property by hydraulic fracturing constitutes a trespass has not been addressed by the courts of Pennsylvania. However, the Texas Supreme Court in Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.2d 1 (Tex. 2008), recently held that hydraulic fracturing that drained neighboring property of gas was not actionable as a trespass.*

11) Are baffles mandatory on all tankers used by the industry, including water trucks and subcontractors' equipment, to minimize accidents caused by liquids sloshing around? Does industry acknowledge any responsibility for effecting such regulations? What objections do they have to them?

*Transportation vehicle requirements for use of baffled tank trucks are subject to federal regulation under the purview of the U.S. Department of Transportation's Federal Motor Carrier Safety Administration. The Pennsylvania State Police is responsible for enforcing most federal and state vehicle safety regulations. Pennsylvania's environmental statutes do not specifically regulate the use of baffled tank trucks to transport frac fluids and drilling materials; however, state environmental regulations found at 25 Pa. Code Section 299 require additional safety requirements to be met when hauling residual waste such as frac fluids and other drilling residuals. Specifically, such requirements include signage requirements, availability of fire extinguishers and safety equipment, ensurance of no leaking loads, maintenance of daily operational records, and contingency plans.*

*DEP is not familiar with industry's position on the federal requirements related to the use of baffled tank trucks.*

12) Why isn't industry using "green chemistry" such as Schlumberger's GreenSlurry?

*As the "green chemistry" and the new and "green" technologies continue to develop, the DEP will continue to review and incorporate these standards in all aspects of the natural gas industries.*

13) Wouldn't most, if not all, tankers transporting flowback fluid have to display one or more hazardous materials placards were it not for legislated exemptions for materials originating from oil and gas wells?

*Placarding requirements associated with the transportation of hazardous waste are subject to federal regulation under the purview of the U.S. Department of Transportation's*

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Federal Motor Carrier Safety Administration. Frac fluids associated with drilling operations that are transported off site are regulated as residual waste in Pennsylvania and must conform to all applicable federal and state transportation requirements. Specifically, *25 Pa. Code* Section 299.220 requires that vehicles transporting residual waste maintain proper identification signs with letters at least 6 inches in height to identify when residual waste is being transported. If hazardous materials are transported from oil and gas well sites then all appropriate federal placarding requirements apply.

DEP is not familiar with placarding exemptions related to the transport of hazardous materials that originate at an oil and gas well site location.

*14) While fracking out West, where water is scarce, why didn't industry recycle frack fluids?*

Reuse or recycling technology is new. It was developed in Pennsylvania primarily because the DEP in 2008 told the industry that it was going to pass a TDS rule that banned the dumping of untreated drilling wastewater in our rivers and streams.

*15) Didn't EPA rule that frack fluids don't need to be subject to disclosure rules for injected materials because most of it returns to the surface? Shouldn't EPA revisit that decision based on industry claims that only 20% is returning as flowback in the Marcellus?*

At this point the EPA has not revised their position. However, the EPA is currently preparing to conduct a long-term scientific study of the effects of the hydraulic fracturing practice.

*16) Where can one find accurate scientific estimates of how much water the gas industry actually pollutes? What figures are circulated within the industry as to acceptable rates of water contamination?*

There are no acceptable rates of water contamination or other sources of pollution.

*17) How many non-disclosure agreements has the gas industry signed with landowners in order to resolve water issues claimed to be caused by gas operations? What percentage of wells are alleged to have impacted water?*

DEP would not have any knowledge or means of tracking agreements between gas companies and individuals. Impacts to a water supply from natural gas drilling are generally related to gas migration (See response to #18 for further discussion on gas migration). Under the Oil and Gas Act, 58 P.S. § 601.208(a), companies that impact a

20 Questions from the Concerned Citizens About Natural Gas Drilling to Governor Edward G. Rendell; with Responses Provided by DEP

water supply have an obligation to replace or restore the water supply to pre-existing quality.

*18) What is the expected failure rate of gas well casings? (Mr. Blauvelt said, "It's a very small number." And repeated that statement in response to, "I should hope so, by what exactly is it?")*

The success of a well is dependent on the overall construction of the well, not just the casing. When casings are installed properly there is minimal failure expected. The problems DEP has investigated with gas migration tend to result from insufficient casing or cement. The issues related to gas migration are not a direct result of the Marcellus formation. The gas migrating is shallow gas that is drilled through to get to the deeper Marcellus formation. Since 2005, and based on reporting to DEP as of September 3, 2010, in Pennsylvania 20,729 traditional and Marcellus natural gas wells have been drilled. Of those 20,729 wells drilled, 99 wells have had gas migration problems. Of Marcellus wells, 33 out of 1922 drilled have been investigated for possibly causing gas migration.

The DEP's updated casing and cementing requirements will provide an increased degree of protection for homeowners and water supplies. These strong rules will be before the EQB on October 12, 2010, for a vote on the Final Rule. The Final Rule then goes to the Independent Regulatory Review Commission in November. The requirements in the final rule will substantially reduce gas migration problems.

*19) What chemicals, and how much of them, does the gas industry release into the air each year? Where do they return to earth? What effects do they have on human health and the environment?*

Marcellus shale drilling, fracturing, flaring, gas collection, and processing can emit nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter (PM), hazardous air pollutants (HAP) such as benzene, and toluene, other volatile organic compounds (VOC) and PM. Air emissions are regulated and technologies now exist that can cut substantially emissions.

Natural gas itself also has air and climate benefits when compared to coal and oil. Natural gas usage in electric power plants is increasing, while the use of coal and oil are stable or falling.

In addition, Governor Rendell and I have led the charge to increase renewable energy and energy conservation. There are now 16 operating wind farms in Pennsylvania, with more in development. More than 2,000 operating solar systems exist in Pennsylvania, with many more in development. Every electric utility is operating large energy conservation programs, with cumulative budgets of about \$250 million per year.

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*20) Can industry quantify the health effects the air pollution it has already produced in PA will have? For example, what impact will its diesel emissions alone have just in terms of asthma?*

The DEP is not aware of any industry quantified health effects study. The DEP has begun a multi-phase effort to conduct preliminary air monitoring to determine what pollutants are released from impact natural gas well sites have on air quality. Initial monitoring was conducted in southwestern Pennsylvania and monitoring is currently underway in the Northeast and Northcentral portions of the state.

The DEP has alerted the Marcellus Shale industry of the need to quantify emissions. The industry will be required to supply emission inventory data.

**PAID UP**  
**OIL AND GAS LEASE**

This Lease Agreement is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

between **John Kesich and Emily Rizzo, husband and wife**  
**RR 2 Box 168 A**  
**Millerton, PA 16936**

as Lessor, (whether one or more), and **EAST RESOURCES INC., having an office at 51 WEST MAIN STREET, P.O. BOX 279, ALLEGANY, NEW YORK, 14706.** as Lessee

(1) **LEASE** - In consideration of the sum of One Dollar (\$1.00) in hand paid, the receipt of which is hereby acknowledged, and in further consideration of the covenants and agreements herein contained. Lessor does hereby grant, demise, lease and let exclusively to Lessee, its successors and assigns, the lands hereafter described for the purpose of exploring for, developing, producing and marketing oil, gas or other related substances produced in association therewith by all methods now known or hereafter known or hereafter discovered, in and under the following described land:

(2) **DESCRIPTION** - All that certain tract of land situate in the Township of **Rutland, Tioga** County, Commonwealth of Pennsylvania, generally bounded now or formerly as follows:

On the North by **M. Kohler**  
On the East by **R. Kreitzer**  
On the South by **J. Sweely**  
On the West by **D. Schmidt**

and for reference purposes only, being County Tax Parcel No. 31-PL01-030-A, being the same tract of land acquired by Lessor by virtue of a Deed from **Darin B. Greenlee And Laurie L. Greenlee** as recorded in the office of the Recorder of Deeds in **Tioga** County in Pennsylvania, Deed Book/Page or Instrument 746/6686 and stipulated to contain, for the purpose of calculating rentals, 55.50 acres, more or less, and hereinafter called "leased premises". This lease includes all accreted or submerged lands contiguous to the leased premises claimed or owned by Lessor.

(3) **TERM** - Subject to the other provisions contained herein, this lease shall be in force for a primary term of Five (5) years and for so long thereafter as oil, gas or other substances covered hereby are produced in paying quantities from the leased premises or from lands pooled therewith or this lease is otherwise maintained pursuant to the provisions hereof. It is understood that so long as this lease is extended beyond the primary term by any provision of this lease. Lessee may commence, resume, or continue the exercise of any of the rights, privileges or purposes hereof during such extended term

**EXTENSION OF TERM:** At Lessee's option, Lessee may extend the primary term of this lease for an additional period equal to the primary term by paying or tendering to Lessor an extension payment of \$ \_\_\_\_\_ per acre payable at any time prior to the expiration of the primary term. If Lessee exercises this option, the primary term of this lease shall be considered to be continuous, commencing on the date hereof and continuing to the end of the extended primary term.

(4) **ROYALTY PAYMENT** - On oil and gas, along with all hydrocarbon and non-hydrocarbon substances produced in association therewith, (except storage gas) Lessee shall deliver to Lessor, as royalty fifteen percent (15%) of the proceeds realized by Lessee for that produced and marketed off the leased premises.

(5) **LESSOR'S INTEREST** - If Lessor owns an interest in the leased premises less than the entire and undivided estate herein leased, then the royalties, shut-in royalties and rentals herein provided shall be paid by Lessee only in the proportion to which Lessor's interest bears to the whole and undivided estate. If the leased premises shall hereafter be subdivided, the leased premises shall nevertheless be developed and operated as one lease, and all royalties accruing hereunder shall be treated as an entirety, and shall be divided among and paid to such separate owners in the proportion that the acreage owned by each owner bears to the entire leased acreage. Lessee shall not be bound by any change in the ownership of the leased premises or any change of the address of Lessor until furnished with such documentation from Lessor as Lessee may reasonable require.

(6) **BONUS CONSIDERATION** - This lease is made on the condition that within ninety (90) days from the date of this lease, Lessee shall pay to the Lessor the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) per acre. **FAILURE BY LESSEE TO PAY THE BONUS CONSIDERATION WITHIN NINETY (90) DAYS OF THE DATE HEREIN SHALL RENDER THIS LEASE NULL AND VOID**

(7) **DIRECTION OF PAYMENT** - All payments herein may be directed to the Lessor or deposited to Lessor's credit or to the credit of Lessor's respective heirs or assigns by check payable to the order and address as set forth above. Lessee shall not be obligated to alter payments as directed above unless with written notice Lessor or Lessor's heirs or assigns direct Lessee otherwise.

(8) **CONTINUING OPERATIONS** - If at the end of the primary term or any extension thereof this lease is not being kept in force by any other provision hereof but Lessee is then engaged in drilling, completing, reworking, equipping or any other operation calculated to obtain production on the leased premises or lands pooled therewith, this lease shall remain in force as long as such operations are conducted in a reasonably prudent manner. At any time after the expiration of the primary term, this lease is not being kept in force by any other provision hereof, Lessor agrees to extend the term one year beyond the completion of plugging operations of the last well on leased premises to permit Lessee to deepen, rework or recomplete said well or to

commence operations for the drilling of another well and if such operations result in the production of any substance covered hereby, this lease will be extended as long thereafter as production continues in paying quantities.

(9) **POOLING** - Lessee is hereby granted the right to pool or unitize the leased premises, or any part thereof, with any other property for the production of any substance covered hereby, so as to create one or more drilling or production units. Said drilling or production units shall not exceed six hundred forty (640) acres or such size as may be permitted to conform to the rules and regulations of any governmental agency claiming jurisdiction. In the event this lease is so unitized, the Lessor agrees to accept in lieu of the royalty herein before recited, such proportion of the royalty above provided as the acreage contributed by this lease bears to the total acreage comprising the unit.

Lessee shall create the unit by executing an instrument identifying and describing the pooled acreage and shall mail a copy thereof to the Lessor's last known address. Lessee shall have the recurring right to revise any unit formed hereunder either before or after commencement of production. In the event of a revision, Lessee shall execute a written instrument describing the revised unit and stating the effective date of the revision. Lessee shall mail a copy thereof to the Lessor's last known address and the proportion of unit production on which royalties are payable hereunder shall thereafter be adjusted accordingly. Lessee may terminate the unit by filing of record a written declaration describing the unit and stating the date of termination.

Production, drilling or reworking operations anywhere on a unit which includes all or any part of the leased premises shall, except for the payment of royalties, be treated as if it were production, drilling or reworking operations on the leased premises.

(10) **GAS STORAGE** - Lessee shall have the exclusive right to use any formation underlying the leased premises for the storage of gas and shall have all rights necessary to store and produce such stored gas. At the time of exercising the rights to store gas hereunder, Lessee shall pay Lessor's proportionate share of the estimated recoverable gas remaining in the relevant well located on the leased premises using methods of calculating gas reserves as are generally accepted by the oil and gas industry. Lessee agrees to pay Lessor an annual rental of five dollars (\$5.00) per acre for all leased premises which Lessee wishes to use for the storage of gas payable in advance while the leased premises are so used and so long as storage payment is made all provisions of this lease shall remain in full effect.

(11) **ANCILLARY RIGHTS** - Lessor grants to the Lessee the right of ingress and egress over, under and through said leased premises with the exclusive right to conduct such operations on the leased premises as may be necessary for the exploration and production of oil, gas or other related substances covered hereby, including but not limited to geophysical operations, the drilling of wells, and the constructions and use of roads, pipelines, tanks, water wells, disposal wells, injection wells, pits, electric and telephone lines, and other facilities necessary, useful or convenient to produce, save, take care of, treat, process, store and transport oil, gas and other products with the right to transport by pipelines or otherwise, oil, gas, water and their constituents from the leased premises and other lands regardless of the source of such substances and the exclusive right of injecting water, air, brine, gas and other fluids into subsurface strata. Lessee shall also have the right of placing electric and telephone lines over the leased premises; the right to erect necessary buildings, tanks, towers, stations or other structures thereon; the right to use free from royalty sufficient oil, gas and water produced from the leased premises for all operations thereon (provided it finds water at its own expense).

The term "gas" as used herein includes helium, carbon dioxide, gaseous sulfur compounds, methane produced from coal formations and other commercial gases, as well as normal hydrocarbon gases including casinghead gas.

Lessee at any time, and from time to time, may surrender this lease as to all or any part thereof by recording an appropriate instrument of surrender in the proper county and thereupon this lease and the rights, rentals and obligations of the parties hereunder shall terminate as to the part so surrendered: provided however, that upon each surrender as to any part of the lease, Lessee shall maintain such easements rights to the surrendered portion as may be appropriate to its enjoyment of the portion not surrendered.

When requested by Lessor in writing, Lessee shall bury its pipelines below plow depth in areas utilized for farming operations. No well shall be located within two hundred (200) feet from any house now on the leased premises without Lessor's consent and Lessee shall pay for damage caused by its operations to growing crops and marketable timber thereon. Lessee shall have the right to remove its fixtures, equipment and materials, including well casing, from the leased premises during the term of this lease and within a reasonable time thereafter.

(12) **SHUT-IN ROYALTY** - If during or after the primary term of this lease, all wells on the leased premises or within a unit that includes all or a part of the leased premises, are shut-in, suspended or otherwise not producing for any reason whatsoever for a period of twelve (12) consecutive months, and there is no current production of oil or operations on said leased premises sufficient to keep this lease in force and this lease is not otherwise kept in force by other provisions of this lease, Lessee may maintain this lease in effect by tendering to Lessor as shut-in royalty, a sum equal to five dollars (\$5.00) per acre. Said shut-in royalty shall be paid or tendered to the Lessor within ninety (90) days after the next ensuing yearly anniversary of the date of this lease, and thereafter on or before each yearly anniversary of the date hereof while the wells are shut-in or production therefrom is not being marketed by Lessee. Upon payment of the shut-in royalty as provided herein, this lease will continue in force during all of the time or times while such wells are shut-in but failure to properly pay shut-in royalties shall render Lessee liable only for the amount due and shall not operate to terminate this lease.

(13) **TAXES** - All taxes assessed or payable on the oil and gas including any ad valorem, production, severance, business, occupation or other excise taxes or any increase in the real estate taxes, or taxes in lieu of real estate taxes imposed because of the oil and gas operations under this lease shall be paid by the parties hereto in proportion to their interest.

(14) **FORCE MAJEURE** - Should Lessee be prevented from complying with any expressed or implied covenant of this lease, from conducting drilling, or re-working operations thereon or from producing oil and gas or other substances by reason of scarcity of or inability to obtain or use equipment, men or material, or by operation of force majeure such as storm flood, fire, or other acts of God, war, rebellion, insurrection, riot, strikes, differences with workmen or failure of carriers to transport or furnish facilities for transportation, or as a result of some law, order or regulation of the government, or as a result of shortage in material or equipment, or as a result of any cause whatsoever beyond the control of the Lessee, then while so prevented, Lessee's obligation to comply with such covenant shall be suspended and this lease shall be extended while and for a period of time equal to that during which Lessee is so prevented from complying.

(15) **DEFAULT** - No default shall be declared against the Lessee for failure to make payment or perform any conditions provided for herein unless the Lessee shall refuse or neglect to pay or perform the same for sixty (60) days after having received written notice from Lessor.

(16) **SUCCESSORS AND ASSIGNS** - All covenants and conditions between the parties hereto shall extend to their heirs, executors, successors and assigns and the Lessor hereby generally warrants and agrees to defend the title to the leased premises, but no change or division in ownership of the leased premises shall operate to enlarge the obligations or diminish the rights of the Lessee. Lessor agrees that the Lessee, at its option, may pay, discharge or redeem any taxes, mortgages or other liens existing, levied or assessed on or against the leased premises, and in the event it exercises such option, it shall be subrogated to the rights of any holder or holders thereof and may reimburse itself by applying any royalty or rentals accruing hereunder to the discharge of any such taxes, mortgages or other liens.

(17) **ACCEPTANCE** - This lease contains all of the agreements and understanding of the Lessor and Lessee respecting the subject matter hereof and no implied covenants or obligations, or verbal representations or promises have been made or relied upon by Lessor or Lessee supplementing or modifying this lease or as an inducement thereto.

(18) **WAIVER IN WRITING** - The failure of either party to enforce or exercise any provision of this lease shall not constitute or be considered as a waiver of the provision in the future unless the same is expressed in writing and signed by the respective parties.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals the date first written above.

WITNESS:

Lessor **John Kesich**

Lessor's SS #

Phone# \_\_\_\_\_

Lessor **Emily Rizzo**

Lessor's SS # \_\_\_\_\_

Phone #

Lessor

Lessor's SS # \_\_\_\_\_

Phone #

Lessor \_\_\_\_\_

Lessor's SS ## \_\_\_\_\_

Phone #

Standard Acknowledgement

COMMONWEALTH OF PENNSYLVANIA )

COUNTY OF

On the \_\_\_ day of \_\_\_\_\_ in the year 20\_\_\_\_ before me, the undersigned, a notary public in and for said state, personally appeared \_\_\_\_\_ . personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

Standard Acknowledgement

COMMONWEALTH OF PENNSYLVANIA

}ss:

COUNTY OF

On the \_\_\_ in the year 20\_\_

day of \_ before me, the undersigned, a notary public in and

\_\_\_\_\_ . personally known to me

for said state, personally appeared \_\_\_\_\_

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Notary Public

Standard Acknowledgement

COMMONWEALTH OF PENNSYLVANIA COUNTY OF

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Notary Public

Standard Acknowledgement

STATE OF

COUNTY OF

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On the

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Notary Public