



O.U.E.

A Publication of Organizations United for the Environment

Update

Gas Drilling in Marcellus Shale: We Need a Moratorium...Now

In OUE, we see the gas drilling in Marcellus Shale as a threat considerably greater even than that posed by the Union Pacific hazardous waste incinerator that provoked thousands of us into action between 1990 and 1994. We hope that the following is unambiguous about the need for a pause in the gas drilling in the region in order to determine more accurately what it will do for us, and to us.

Given this situation, we will use all of this issue to muster support for a moratorium on gas drilling in Pennsylvania so that the dangers posed by the process can be fully analyzed. The call for this moratorium has been issued by the Pennsylvania Campaign for Clean Water (PCCW), about which there is more information on page four. Their preamble demands a “halt to further drilling on both private and public lands in Pennsylvania in order to allow the time for policy makers to determine and implement necessary regulations of the gas industry so that our environment, health, and communities are fully protected.”

In this matter of the gas drilling, we in OUE will continue to support the work of the Responsible Drilling Alliance (RDA) in Williamsport, the region’s most informed group resisting the spread of the drilling. We urge readers to consider joining RDA in its public information campaign about the grave dangers of the drilling, and in its efforts to get the state to institute a moratorium.

Below, with the help of a key article on deforestation by RDA member, Kevin Heatley, we will summarize our understanding of the principal hazards of the gas drilling. The last page will provide more details about how to join forces with RDA.

Rush to Gas Drilling and its Principal Hazards

Estimates of between 150 and 550 million cubic feet of natural gas beneath Marcellus shale have attracted drilling companies from everywhere, the most prominent example being Exxon-Mobil. This behemoth bought a drilling company for \$41 billion and now controls the leasing of 280,000 acres in Pennsylvania. Through August of this year, the state has issued about 4,700 permits for gas wells, and it is genuinely a

chaotic rush to drill: 99 permits were issued in 2007; 519 in 2008; 1,985 in 2008; and 2108 through the first eight months of 2010. Drilling companies and their political allies have often stated publicly that their eventual goal is 100,000 gas wells drilled into the Marcellus shale. A principal expert on these matters, Dr. Anthony Ingraffea of Cornell University, has written that within the industry 400,000 wells have been suggested as a possibility.

What follows describes what we see as the most hazardous aspects of this drilling – called “fracking.” Ours is a brief survey, intended essentially as a huge, red warning flag waving in the wind. Readers can get a more complete story with an internet search, and we will suggest key sources along the way. We write as literate adults who can read the handwriting on the wall. We assume our readers can do that, too.

How does “Fracking” Work?

Gas well sites are located in fields or woods on “pads” used for necessary equipment and the drilling towers that loom over the land. Workers drill a deep hole — typically over a mile down in our area – and then pump down the well, and pressurize, between two and nine million gallons of fresh water, mixed with sand, detergents, and hundreds of chemicals, many of them highly toxic. The pressurized mix assaults the shale with a multitude of “tiny earthquakes” and shatters it sufficiently to allow the gas to be released and collected. On average, about two thirds of the mix that goes down the wells comes back up in the form of briny fluid that includes whatever additional dirt, rocks, and toxins it gathers along the way. This entire process promises a host of dangers and it delivers them faithfully in the following ways.

Water Usage and Contamination.

If, for example, the industry realizes its dreams of drilling 100,000 gas wells in the state it will need to siphon away from the rest of us 500 billion gallons of water. The drilling companies are given, or buy, and sometimes steal, the water from waterways, ponds, and lakes. State regulation is inadequate, even though many areas slated for drilling face water short-

ages. As the drilling expands, can “water wars” be far behind?

More immediately pressing is the dangerous hazard of water contamination by the fracking fluid. The two thirds that comes back up the well contain dozens of dangerously toxic materials that can contaminate both air and water (see on the internet Dr.Theo Colborn discussing these poisons, especially “endocrine disrupters”). This waste fluid is either trucked away to treatment plants, many of which can’t deal with it properly, flared into the sky as poisoned smoke, or poured into ponds to be reused or left to evaporate its toxins into the air. When these ponds are dried, what remains is often plowed under with yet undetermined long-term consequences. At every stage of the process, there is the potential for seepage, spills, and mishandling that can result in contamination of groundwater, private wells, ponds, lakes, and open waterways. Some geologists fear that the billions of gallons of fracking fluid that stay beneath the surface, whose long-term consequences we know little about, could spoil the huge aquifers that lie below most of the same area that contains Marcellus shale.

Widespread gas drilling in Texas, New Mexico, Wyoming, Colorado, and now in Pennsylvania has generated hundreds of spills, mostly from trucks, burst pipes, and overflows. Journalist Mark Levy, summarizing findings by the Penn. Land Trust Association, writes that: “[In Pennsylvania], forty three Marcellus shale natural gas companies committed 1,435 violations in the past two and a half years...[including] violations of the Clean Streams Law, poor waste water impoundment construction, inadequate plans to control erosion, and toxic chemicals being dumped onto the ground, or into streams” (*TheUnion.com*, 6/8/10). Dimock, Pa. and Dish, Texas (a suburb of Ft. Worth), are now literally under siege by the drilling companies (with copious details on the internet). Elsewhere in this state, two groups of families, one each in Susquehanna and Tioga Counties, are threatening legal action against drilling companies for water contamination. Several families in Susquehanna County describe “releases, spills and discharges of combustible gases, hazardous chemicals and industrial wastes” that have contaminated their wells (*NYTimes*, 10/8/10).

Air Pollution (and Truck Traffic)

In addition to evaporation and flaring, fracking generates air pollution from compressors at the drilling site. Opponents of gas drilling in and around Dish, Texas argue that air pollution from the drilling and truck traffic, and particularly from the air compressors that force the fluid underground, now put more toxic chemicals into the air than do the millions of vehicles

driven on the city’s vast web of highways.

There are of course further problems that arise from all the truck traffic that transports the fluids to and from the drilling pads. Recently, the *Sunbury Daily Item* (10/7/10), reported that a state police “crackdown on trucks serving the gas drillers resulted in 959 citations for violations mostly related to faulty brakes, lights, and permits.” As a result, sixty four drivers were “taken out of service.” The *Earthworks* web site estimates that fracking one well with five million gallons of water requires 100 large water

trucks to haul in the water and about 700 smaller trucks to haul away the toxic waste. That’s a total of *eight hundred trucks* on the highways, then on the small roads, to and from *a single drilling site*. Try to imagine the dan-

gers of driving on our roads and highways as we move toward the 100,000 wells the drillers dream about. How about 400,000 wells?

Gas Drilling and Political Corruption.

The oil and gas industry is the most politically powerful one in the U.S., and thus the enormous profit potential for gas drilling meant that the political fix has been on all along. Christopher Bateman, writing in *Vanity Fair* (6/21/10), states that, “Although fracking was never regulated by the federal government, it was granted explicit exemptions...from the Safe Drinking Water Act, the Clean Air Act, and the Clean Water Act by the Energy Policy Act of 2005, the wide-ranging energy bill crafted by Dick Cheney in closed-door meetings with oil-and-gas executives.” That law included the “Halliburton Loophole,” enabling companies “to pump millions of gallons of fluid containing toxic chemicals into the ground, right next to aquifers, *without even having to identify them.*” Given that many of the poisons in the frack water are “endocrine disrupters” and particularly dangerous to children, the Halliburton loophole is the kind of law you expect to emerge only in a corrupt dictatorship.

In Pennsylvania, according to *Common Cause*, the Republican candidate for governor, Tom Corbett, received his largest donation “from the CEO of a gas drilling company who owns drilling rights to hundreds of thousands of acres over the gas-rich Marcellus shale formation.” Mr. Corbett has repaid the favor by calling for voluntary drilling regulations worked out with the industry.

Deforestation.

This problem likely will end up being the most devastating consequence of the gas drilling. Because of its crucial importance, we have asked Kevin Heatley, a Restoration Ecologist and a member of RDA, for the assessment that begins on the next page. ♦

Our Sources. We would suggest beginning with “Gasland,” a documentary by Josh Fox, and the web sites of Responsible Drilling Alliance, Earthworks, and unnaturalgas.org. Other such sites provide the myriad sides of the argument, including the one from the oil and gas industry stating that without drilling for gas in Marcellus shale, the economy will collapse, we will starve, the terrorists will take over, and the sky will fall.

Death of the Wilds: A Eulogy for Penn's Woods

Kevin Heatley

Death of the Wilds?" "A Eulogy for Penn's Woods?" Oh no, not another tree-hugger, soil-worshipping eco-rant! Sounds like more hyperbole designed to wildly exaggerate the impact of the Marcellus development on our landscape! What doomsday scenario are they predicting now, that the gas industry is going to cut down all the trees?

Well, not quite, but as a professional restoration ecologist who scratches out a living attempting to repair damaged landscapes, I can provide you with an informed projection as to how the central attraction of our region - the forest, will change. And change it will, as there are massive ecological consequences associated with the decision to convert one of the largest unbroken expanses of forest cover in the eastern United States into an industrial zone. While technological innovation has the potential to reduce, but not eliminate, the negative air and water quality issues associated with Marcellus Shale gas extraction, the ultimate landscape footprint from this dispersed industrial activity is unavoidable.

As citizens concerned with the long term sustainability of our communities, it is critical that we understand, and weigh, the full cost/benefits associated with allowing this activity. When the Marcellus extraction is finished in a few short decades will the land be in better or worse condition? This is not a mere esoteric question or matter of aesthetic preference, as the forest resource is an economic engine that, if managed properly, actually appreciates in value over time.

So let's take a quick look at what makes Penn's Woods so special and how the forest system will change if the Marcellus is developed to capacity.

Once completely forested, Pennsylvania currently has over 16.6 million acres of forest. Covering approximately 58% of the State's land area, this woodland is not the same wilds that met the European colonial. That virgin forest, once composed of massive trees over 400 years old, was liquidated during the late nineteenth and early twentieth centuries during a period of non-sustainable industrial logging. This ecological holocaust made millions for a handful of folks and impoverished the landscape and remaining communities for generations. A lesson learned? Maybe, maybe not.

Fortunately, we are almost 100 years into the post-logging recovery and a new forest has emerged from the burned logging slash and debris. This resource has a high degree of what ecologists call "ecological integrity" as it is largely contiguous. Large, non-fragmented areas of woodland have an inherent ability to maintain sustainable levels of forest-dependent species and the ecosystem benefits upon which our society is dependent; air and water purification, climate regulation, soil stabilization, ground-

water recharge, carbon sequestration, wood fiber, etc. While other regions of the eastern United States have scattered and isolated patches or strips of forest, we have an exceptional level of increasingly rare "core" forest. Core forest can be thought of as that area of the woodland that is not immediately adjacent to a non-forest land use such as housing, roads, shopping malls, or industrial sites.

How far from a non-forest land use does the woodland have to be to be considered "core" forest? That depends upon the species of plant or critter you are considering, however, a basic rule of conservation biology is that the larger the area of core forest – the greater number of species it will support. Quite simply, this is one of the key aspects of Penn's Woods that makes it so valuable. Literally millions of nature-starved people live less than a days' drive from this landscape experience. An experience they are not going to find anywhere else in the mid-Atlantic region.

And then along comes the Marcellus gas industry. How will this change our woodlands? Given the industry projections of an approximately five-acre well pad spaced every mile that can't be that bad, right? Oops, we forgot the access roads and the connecting pipeline right-of ways. This is where the real problem occurs. Each linear mile of road or right-of-way impacts an area well beyond the actual physical footprint. Research has demonstrated that this "road effect zone" can penetrate deep into adjacent woodlands. For instance, noise from high-traffic volume roads (think frack trucks) has been shown to reduce the breeding densities and distribution of many bird species within a 40 to 1,500 meter zone. Wetland species have been found to be negatively impacted up to 2 kilometers from paved roads.

Roads and right-of-ways change the light and moisture levels on the forest floor creating cascading effects on the entire forest system. The fragmented forest along a roadside frequently displays lower productivity than undisturbed woodland. Populations become restricted to small areas as roads often become barriers. This isolation puts many species at risk of local extinction when any additional stress occurs in the system.

We should also anticipate massive incursions of non-native invasive species. Invasive species are estimated to cost the American economy approximately \$120 billion dollars per year in damages and control costs. They tend to follow disturbance corridors such as roads and right-of-ways. The proposed Marcellus build-out is a perfect recipe for their invasion. The mix – remove existing plant cover, stir up the soil, increase light levels, and add frequent movement of vehicles from miles away carrying invasive seeds and plant parts on their tires and undercarriage. Presto! Instant biological invasion! Once established, invasive organisms will rapidly penetrate into the adjacent woodlands displacing native spe-

cies and disrupting forest regeneration.

Now we have created a different ecosystem, one primarily dominated by “edge” habitat, a place where the woods meets the non-woods. Yet we can already hear the Marcellus apologists claiming that this is a good thing. That the loss of core forest will open up new opportunities for other species like groundhogs, starlings, and deer ticks. Remember - edge is cheap and easy to create. Every subdivision, every new roadway, every agricultural field is dominated by edge habitat. It screams “anywhere USA.” Penn’s Woods will become Penn’s Woodlots. We may save the trees but we will lose the forest.

Unlike some of the other negative impacts of the natural gas industry, the landscape footprint is unavoidable. This dispersed industrial activity is inherently incompatible with forest sustainability. The choice is clear. Surrender the forest, the central defining characteristic of the region, or place a moratorium on all new gas drilling in the State. You cannot, as many politicians would have you believe, have both the woods and the wells.

If you are interested in learning more about this and/or other critical issues associated with the Marcellus Shale natural gas play, please contact the Responsible Drilling Alliance. Our goal is to assure that the citizens of our state are supplied with the full information that they need to make an intelligent decision regarding the future of our communities. We need your voice and your talent! Please join with us today as we work towards protecting tomorrow. ♦

An Introduction to the Responsible Drilling Alliance

This following section is excerpted from an RDA brochure, and it reflects well the group’s viewpoint and intentions. RDA was the first regional group to see the grim specter of gas drilling on the horizon and the first among us to describe in detail its most obviously destructive dimensions. Certainly, we in OUE send a big Thank You! to RDA.

The Marcellus drilling boom continues unabated across Pennsylvania. The industrialization of Pennsylvania’s forests and farmland is imposing heavy costs on our health and environ-

ment. Pennsylvania is experiencing never-before-seen levels of air pollution, contamination of drinking water, scarring of the land with gas drill pads and wastewater pits, destruction of forests and natural areas, damage to roads and bridges by heavy rigs, the removal of billions of gallons of water from our streams, rivers and aquifers and the subsequent poisoning of that water with cancer-causing and hormone-toxic chemicals.

RDA seeks a moratorium on further drilling on both private and public lands in Pennsylvania. A moratorium is needed in order to allow time for the full impact of drilling for natural gas to be determined. Once that determination is made, necessary regulations must be put in place and the moratorium continued until such time that our environment, health and communities can be fully protected.*

The Responsible Drilling Alliance is a grassroots, all-volunteer group of dedicated citizens who have formed an education and advocacy coalition. RDA welcomes members with the widest possible concerns, interests and ideologies. RDA members are parents and grandparents, students, business people, hunters, fishermen, farmers, hikers, musicians, teachers, truckers, those who have leased their land to a gas company, and those who have refused. RDA invites you to add your voice to ours in support of a moratorium on gas drilling.

You can join RDA by visiting the web site, www.responsibledrillingalliance.org. Members receive a weekly electronic newsletter with updates and action steps. You can also send your name and address by mail to: Responsible Drilling Alliance P.O. Box 502 Williamsport, PA 17703. There is no membership fee to join. Donations in any amount are welcome and deeply appreciated. ♦

***OUE editorial note: We urge you to check out the web site of Pennsylvania Campaign for Clean Water for more details about the moratorium, and crucial information about how to protect the state’s 83,184 miles of streams and rivers, 161,445 acres of ponds and lakes, over 403,000 acres of wetlands, and 47 trillion gallons of groundwater.*

The OUE Board meets on the first Monday of every month at 7:00p.m. in the meeting room of the Mondragón Co-op Bookstore, 111 Market Street, Lewisburg. Please join us!

OUE Publications Committee: Editor, Charles Sackrey; Associate Editors, David Laidacker, Sally Lauver, Thom Lauver and Clyde Peeling .

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LETTER FROM THE BOARD

Fall, 2010

Dear Readers:

As you can see, we have given over our pages in this issue to a campaign asking for a moratorium on gas drilling. However, this does not mean that OUE will stop being available to anyone who walks into one of our meetings with the familiar complaint that, "A big polluter wants to locate a factory close to my neighborhood."

At the same time, for all the reasons implicit in the articles in this issue, we see it as absolutely crucial to add to the resources, both time and money, that we have already shared with the Responsible Drilling Alliance.

One way we will do this is to allocate all donations in response to this issue as follows: we first will pay for printing and mailing the newsletter, including 1,400 additional copies for RDA to circulate widely where the most drilling is occurring in our region. We then will donate to RDA half the rest of the funds we receive. Thus, we can help them to build their resistance while keeping ourselves prepared to give advice, time, and seed money to citizens who come to us resisting a different kind of polluter.

We appreciate very much all the support we get from our readers, without whom we couldn't do anything we do.

David Laidacker and Charles Sackrey
Co-Chairs, OUE Board

Here's my tax-deductible donation of: \$10____\$15____ \$25____\$50____\$Other____

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(The reverse side of this sheet provides a list of donors who responded to our last issue.)