

Theo Colborn Addresses Air, Water Issues Related to Gas Drilling

by Sue Smith-Heavenrich

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It was standing room only at the Spencer Town Hall last Wednesday, February 11 as close to 80 people squeezed into the meeting room to listen to Dr. Theo Colborn speak on health issues related to gas drilling. Colborn directs the Endocrine Disruption Exchange in Paonia, Colorado and is widely recognized for her work on how toxic chemicals in the environment impact human health.

Colborn, who was unable to visit Spencer, narrated her slide show via a remote connection: a microphone attached to a cell phone plugged into an amplifier. Autumn Stoscheck, one of the people who arranged the program, clicked through a power-point slide show as Colborn spoke.

Although natural gas exploration has been going on for awhile in Colorado, Colborn said that there was a dramatic increase in drilling after the 2005 Energy Act was passed. That act exempted gas and oil companies from a number of environmental regulations including provisions in the Safe Drinking Water Act and the Clean Water Act.

The most visible aspects of drilling, Colborn noted, are the well pads spaced about every 35 acres, and the constant haze over the Rocky Mountains. Constant traffic of water trucks – seven days/week, 24 hours/day – contributes to the air pollution problem. The amount of traffic is determined by the number of wells – sometimes up to 20 or 30 per well pad – and the number of times each well is fractured (fracked). Some of the wells are fracked up to 10 times, and the horizontal wells often extend 2,000 feet from the kick-off point.

“Industry has started to use the term ‘stimulation’ instead of fracking,” Colborn said. “This sounds more benign.” Regardless of which term is used, the process of fracturing rock to extract gas creates mini-earthquakes. The process uses millions of gallons of water (in NY, between 3 – 4 million per frack) and once started, the process cannot be interrupted.

Fracking runs 24 hr/day until completed (usually 36 hours or so), requiring that frack water trucks be present as well as those carrying the diesel fuel to keep the machinery running. During the fracking process a number of chemicals are used, including: friction reducers, surfactants, emulsifiers, corrosion inhibitors, acids, and biocides, as well as heavy metals such as chromium.

Anywhere from 30 to 70 percent of the water is estimated to be recovered, Colborn said, stressing that no one has actually measured how much of the chemically-laced fracking water comes back out of the well. Water that is recovered, however, may be treated and reused in the process.

Fracking Chemicals

Colborn began investigating the chemicals used in drilling when people living near gas wells began complaining about health effects. Gathering the information was not easy because the companies considered their information “proprietary”. Still, Colborn collected material safety data sheets (MSDS) for 247 of the products used and has listed 278 of the chemicals used in the formulas.

Ninety-three percent of these chemicals affect health and 43 percent are known endocrine disruptors. Endocrine disruptors are man-made chemicals that, when absorbed into the body, mimic hormones or block hormones and disrupt the body’s normal function. They have been linked to infertility, ADHD, autism, diabetes, thyroid disorders – even childhood and adult cancers that have been found to be linked to fetal exposure to endocrine disruptors.

People aren’t the only ones affected – fish, birds, and wildlife are also sensitive to endocrine disruptors.

Because many health assessments are based on cancer rates, and because only a small percentage of fracking chemicals cause cancer, it is implied that the chemicals are not dangerous. Most of them, however, are associated with skin, eye and respiratory irritations, gastrointestinal problems, or brain and nervous system effects. Many of the chemicals contribute to chronic health problems that only show up over time, such as the headaches and respiratory problems afflicting some gas field workers.

Air Quality Issues

Drilling may produce a number of airborne pollutants as well,” Colborn told the audience. These pollutants may include heavy metals such as arsenic and mercury, and radioactive materials.

“Fugitive methane and volatile organic chemicals may be released directly into the air around a well site,” Colborn said. In addition to methane, these chemicals may contain the “BTEX” complex (benzene, toluene, ethylbenzene, and xylene), hydrogen sulfide, diesel exhaust, and nitrous oxides.

While diesel exhaust by itself may seem an acceptable cost of mineral exploration, combine it with nitrous oxides under a sunny sky and you create an ozone problem. Ozone in the upper atmosphere protects us from damaging ultraviolet rays, but at ground level ozone is a pollutant that affects our respiratory systems.

This past winter ozone levels in Wyoming reached over 100 parts per billion (ppb). Ozone plumes may extend up to 200 miles, affecting the health of humans, livestock, forests, and crops.

“Ozone can burn holes in the alveoli of the lungs,” Colborn said, pointing out that destruction of these tiny air sacs contributes to early aging of the lungs. Exposure to ground-level ozone contributes to asthma in children and adults as well as chronic obstructive pulmonary disease (COPD).

Ozone is equally damaging to conifers, commercial timber trees, and forage and food crops. Researchers have noted effects on plants at levels of 50 ppb. In the western US trees play an important role in holding water, so a threat to the health of forests is also a threat to the water supply.

“You have to consider air pollution as seriously as water pollution,” Colborn said. The level of ozone created by a single drilling site is not significant. It is the collective impact that people need to pay attention to – the impact of significant gas development in one area.

SIDEBAR: Information Resources

For a description of the chemicals Fortuna plans to use in drilling Marcellus Wells, go to www.fortunaenergy.com/upload/media_element/26/01/microsoft-word---chemical-descriptions-for-marcellus-shale-wells-fortuna-_2_.pdf

The Endocrine Disruption Exchange (www.endocrinedisruption.com) has a section devoted to “Chemicals used in Natural Gas Development and Delivery” as well as an analysis of fracking products used in western states.

The Oil and Gas Accountability Project (OGAP) has an entire library of resources at http://www.earthworksaction.org/oil_and_gas.cfm

The Environmental Working Group has a page on oil and gas development (click under natural resources) at <http://www.ewg.org/>