Web-Based Tool Tracks Marcellus Impacts

by Sue Smith-Heavenrich
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Want to know whether Marcellus wells nearby are contaminating local drinking water wells? Or are you just curious about where companies are drilling Marcellus Shale wells? Power up your laptop, because now there is a web-based tool that allows you to follow the impacts of drilling in Marcellus shale: FracTracker (www.fractracker.org).

Earlier this summer the University of Pittsburgh's Center for Healthy Environments and Communities (CHEC) unveiled their newest public health tool. FracTracker, developed by Pittsburgh-based Rhiza Labs, combines a web-based data tool for tracking and visualizing data related to gas extraction with a blog for synthesizing the data. Together, they allow community scientists the ability to upload their own data on drilling permits, spills, water monitoring results or other drilling-related observations. FracTracker also allows users to create visual maps based on data collected by others.

Dan Volz, director for CHEC, is grateful for the funding from the Heinz Endowments that makes the web-based data collection possible. But it's still a work-in-progress.

FracTracker grew out of a realization that the intensive industrialized drilling characterizing gas extraction from Marcellus and other shales may bring a host of economic, environmental and public health concerns, Volz says. Among them are degradation of road infrastructure, explosions and blowouts, impacts to agriculture, hunting and fishing, and the potential for water contamination from the disposal of waste fluids into surface waters.

The problem for people who live in communities affected by drilling is that too often the actual data about drilling incidents isn't available. Or it isn't located where they can find it. That's where FracTracker comes in. According to Volz, FracTracker will enable people to better assess documented and predicted impacts. They'll be able to correlate those impacts with the geographic location of drilled wells, as well as compressors and other production facilities.

At its core, FracTracker is a network of people – researchers from diverse disciplines as well as citizens – who collect, share and analyze data and then use that information to address issues that have a real impact on their communities. Researchers at CHEC are particularly interested in potential public health problems, from community and behavioral health issues to water contamination. For example, police departments in areas undergoing intensive drilling have noticed an increase in traffic accidents, DUI's and other infractions. The FracTracker tool makes it possible to share such information with others.

Another concern is the excessive use of groundwater and surface water in some areas, Volz said. This has led some people to ask whether the amount of water withdrawn may deplete local aquifers. The list of concerns includes exposure to fracking chemicals from leaks, spills and accidents as well as exposure to volatile organic compounds that off-gas from frack pits and production facilities. Add to that the potential for water contamination from toxic metals brought up in flowback and brine, elevated levels of radioactivity in brine and other well effluent, and the inadequate treatment and disposal of brine, and you've got a long list of worries, Volz pointed out.

Brine, the salty effluent produced in the rock layer that comes out of the ground with the produced gas, contains high levels of dissolved solids. Disposal of those brines into public wastewater treatment facilities has already created problems in the Monongahela River.

“A number of public wastewater treatment facilities accept oil and gas wastewater,” Volz explained, flipping to a map that shows a proliferation of these sites in the Monongahela drainage. The problem: thirteen licensed facilities are dumping such treated wastewater into a river that serves as the source water for Pittsburgh.

“Some of these places accept hundreds of thousands of gallons each day,” Volz said. This results in 612,000 gallons of brine going into the Monongahela River each day. The amounts of solids may not seem large – they’re measured in parts per million (ppm) – but when you tally up the total it’s a lot of salts going into Pittsburgh’s drinking water.

Six hundred and twelve gallons of flowback translates into 825,000 pounds of dissolved chloride, strontium and barium each day. Right now, said Volz, Pittsburgh is experiencing a draught, and the level of dissolved solids in the river is increasing, approaching 1,000 ppm at times. “We’ve heard complaints that the water tastes salty in some areas,” he said.

The concern, at least for CHEC, is potential public health implications of higher dissolved salts in the public water supply. Especially bromine, Volz said. That can react with chlorine in a treatment plant, creating chlorinated byproducts which have been implicated in such things as in increased incidence of urinary tract infections, spontaneous abortions and stillbirths.

“Every day in Pittsburgh people complain about the taste and odor in their water, and DEP (PA Department of Environmental Protection) issues a statement that it’s just a small violation in the treatment plant,” Volz said. What the DEP is not looking at, Volz says, is the toxic cations created by brominated and chlorinated compounds.

What happens to people on salt-restricted diets, Volz asked? He is concerned that increased solids (salts) in the city’s drinking water could contribute to a real public health problem. Unfortunately, no one is really looking closely at this issue right now. DEP may be looking at the gross standards of total dissolved solids (what *can* be allowed in effluent by permit) but they’re not looking at the toxic cations produced when that water hits the drinking water treatment plant, Volz said. FracTracker, he hopes, will help change that.

People for a Healthy Environment is a Chemung County-based group that hopes to use the tools available on FracTracker. Acting president Frank Patterson sat in on a recent training seminar to learn more about creating maps. “Our group grew out of the public opposition to Schlumberger’s move to Horseheads,” Patterson said. They organized around the purpose of challenging government actions or inactions relating to legislation and permits that authorize corporations to explore, harvest, support, or provide service that may result in harm to the natural environment.

While the group is focused on Marcellus drilling at the moment – development of wells, pipelines and compressor stations – Patterson says they are interested in a broad range of environmental issues. “Anything that impacts our water, air or soil will affect our health,” he said. To find out more about the group contact him at 607-589-4790 or by email at fzpatterson@msn.com