

GAS DRILLING IN DRINKING WATER WATERSHEDS

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In the spring of 2010, DEC announced that the watersheds that supply drinking water for New York City and Syracuse, NY "will be excluded from the pending generic environmental review process for natural gas drilling using high-volume horizontal drilling in the Marcellus shale formation. Instead, applications to drill in these watersheds will require a case-by-case environmental review process to establish whether appropriate measures to mitigate potential impacts can be developed". The reason given for this is that the drinking water from these watersheds is unfiltered, and the EPA, in conjunction with the NYS Department of Health, has issued a Filtration Avoidance Determination (FAD), which means that NYC, for instance, does not have to construct a \$10 billion filtration plant. Instead, NYC has a comprehensive watershed protection program that meets the requirements for unfiltered water systems. The intent of FAD watershed control requirements is to protect the microbiological quality of the drinking water by minimizing particulate matter.

This was a convenient way for the DEC to exclude the NYC watershed from gas drilling. Drillers will tend to avoid having to go through site-specific State Environmental Quality Reviews (SEQR) for gas drilling applications. However, it avoids the bigger issue of the threat of chemical contamination from gas drilling to ALL of the drinking water watersheds in the Marcellus shale region, not just for two communities, NYC and Syracuse. With this announcement, DEC seems to imply that those communities who do filter their surface drinking water supplies are safe from the potential threats of gas drilling. This implication is scientifically flawed.

Gas drilling using the technique of horizontal drilling and high-volume hydraulic fracturing uses millions of gallons of water and over 100 tons of chemicals for each well. Some of the chemicals used in the fracturing process are toxic hydrocarbons and are listed as contaminants in EPA's drinking water standards. Following the fracturing process, close to half of the water and chemicals used returns to the surface as wastewater, with additional contamination picked up from the shale bedrock. These include heavy metals, salt brine, and radionuclides such as radon, which are also listed as contaminants in drinking water standards. Except for the salt, these contaminants are dissolved in the wastewater.

There are a number of ways that surface waters can become contaminated from gas drilling operations. There will be hundreds of large tanker trucks per well carrying chemicals and wastewater over secondary roads. Add these up over hundreds of wells, and the potential for tanker spills is real. According to DEC, there will be storage tanks and large centralized open impoundments for storing gas drilling wastewater. Tanks and pipes can leak and impoundments can overflow in a rainstorm or develop liner leaks. There is also the potential for fracturing fluids, under high pressure, to migrate vertically through naturally occurring fractures in the overlying bedrock and contaminate ground and surface waters. Thus, given the multiple potential sources of contamination, there is a real possibility of ground and surface drinking water supplies

becoming contaminated with toxic hydrocarbons, heavy metals, radioactivity, and high levels of chlorides.

As pointed out above, most of the contaminants are in solution and are not solid particulate matter. Filtration plants used by municipalities to remove particulate matter from drinking water are not capable of removing contaminants in solution. These contaminants will pass right through conventional filters and enter a drinking water system. The concentrations of the toxic hydrocarbons and heavy metals may be very low, but the long-term effect on public health of low-level exposure to toxic chemicals is unknown. For this reason, all drinking water watersheds in the Marcellus shale region should be afforded the same protection as NYC and Syracuse.