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INDEPENDENT REGULATORY
REVIEW COMMISSION

Sierra Club-Moshannon Group

Comments on Proposed Chapter 95 Regulations

The Moshannon Group of the Sierra Club supports an energy policy that moves us towards the clean energy future.

However, we do not support natural gas drilling if it causes harm to the environment.

At present, drilling for gas in the Marcellus Shale is causing harm to the waters of this Commonwealth because the wastewater produced is discharged untreated into our streams.

The Department of Environmental Protection (DEP) has finally recognized the discharge of untreated wastewater from Marcellus gas wells as an environmental problem. Discharge limits are now being proposed under 25 Pa. Code Chapter 95. The DEP has proposed new regulations for industrial wastewater that is high in total dissolved solids (TDS). Natural gas drilling operations in the Marcellus Shale uses substances high in TDS for hydrofracturing (fracking) wells. The wastewater that comes back out of wells (flowback fluid) after fracking is also high in TDS. The high levels of TDS in Marcellus wastewater is mostly in the form of salts and can be two to four times saltier than seawater.

There are two sources of wastewater from Marcellus gas wells – flowback water from the fracking process and produced water. Flowback water can contain many contaminants. Frac and flowback fluids can enter streams and rivers intentionally (legally by permit) or accidentally. The result can be a danger to health for all organisms - including humans. It can also make the water unfit for industrial use. According to the United States Geological Survey fact sheet on Marcellus Shale, for gas to flow out of the shale, nearly all of the water injected into the well during the hydrofrac treatment must be recovered and disposed of. In addition to the problem of dealing with large bulk volumes of liquid waste, contaminants in the water may complicate wastewater treatment. Whereas the percentage of chemical additives in a typical hydrofrac fluid is commonly less than 0.5 percent by volume, the quantity of fluid used in these hydrofracs is so large that the additives in a three million gallon hydrofrac job, for example, would result in about 15,000 gallons of chemicals in the waste.

Along with the introduced chemicals, hydrofrac water is in close contact with the rock during stimulation treatment, and when recovered may contain a variety of formation materials, including brines, heavy metals, radionuclides, and organics that can make wastewater treatment difficult and expensive. The formation brines often contain relatively high concentrations of sodium, chloride, bromide, and other inorganic constituents, such as arsenic, barium, other heavy metals, and radionuclides that significantly exceed drinking-water standards (USGS Fact Sheet 2009-3032).

Our freshwater river systems, the Allegheny, Monongahela, Susquehanna, and Delaware Rivers, and our smaller streams do not have the assimilative capacity to absorb the heavy metals, heavy metals, and brines from these waste streams. TDS causes toxicity to water bodies through increases in salinity, changes in the ionic composition of the water, and toxicity of individual ions. The major concern associated with high TDS concentrations relates to direct effects of increased salinity on the health of aquatic organisms. Increases in salinity have caused a shift in biotic communities.

In summary;

The DEP's proposal will go a long way towards ensuring that our drinking water supplies will not have unsafe levels of total dissolved solids (TDS). DEP should not weaken their proposed discharge standard for TDS. 2. We need these regulations to be in place as soon as possible to protect our rivers and drinking water. DEP should stop giving out more drilling permits until wastewater rules are in place. The DEP should also stop allowing existing or proposed wastewater plants to pollute our rivers unless they follow these new rules. 3. The DEP should add discharge standards for those contaminants that are frequently found in Marcellus Shale gas drilling wastewater. These would include bromides, arsenic, benzene, radium, magnesium, and possibly others. Many of these contaminants are very difficult for drinking water systems to remove. 4. The DEP needs to ensure that all aspects of the generation

of Marcellus wastewater are regulated. Currently there are no requirements to track wastewater from drilling sites to treatment plants, and there is no oversight over the reuse of Marcellus wastewater.

We support the three major effluent limitations announced by DEP in this regulation. The discharge may not contain more than 500 mg/L of TDS as a monthly average. The discharge may not contain more than 250 mg/L of total chlorides as a monthly average. The discharge may not contain more than 250 mg/L of total sulfates as a monthly average. We believe each is necessary to maintain water quality in our streams. We hope that these will be the first in a series of measures taken to ensure responsible gas drilling that does not degrade the environment.

Sincerely,

Gary Thornbloom

Chair

Sierra Club - Moshannon Group