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Scientists share gas industry concerns

October 9, 2010 - By DAVID THOMPSON - dthompson@sungazette.com

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If the Marcellus gas industry did everything it should to make sure natural gas development is "done right," that still would not be good enough for Dr. Anthony Ingraffia.

Ingraffia, a Dwight C. Baum Professor of Engineering and Weiss Presidential Teaching Fellow at Cornell University and Dr. Michel C. Boufadel, chair of the Department of Civil and Environmental Engineering at Temple University, discussed shale gas development before a large crowd Friday at Lycoming College.

Their presentations were co-sponsored by the college's Clean Water Institute and local gas industry watchdog group the Responsible Drilling Alliance,

Ingraffia presented a hypothetical letter he wrote but said he wished the gas industry had sent to the citizens of Pennsylvania three years ago.

In that letter, the "industry" made a series of promises regarding how it would responsibly develop natural gas in the state.

Those promises included funding emergency responder training, funding treatment facilities needed to treat industry wastewater, being transparent well in advance about plans for wells, pipelines and compressor stations, reforesting woodlands, paying a severance tax, adhering to state regulations and not polluting fresh water supplies.

It also included a promise to put 1 percent of gas revenue into an emergency fund to pay for remediation measures should calamities occur.

Even if the industry did all the things listed in his hypothetical letter, Ingraffia said he would say "no thanks" to it.

Ingraffia discussed the composition of water that returns to the well head after the hydrofracturing process. That water is very salty and contains metals and other materials, some of which are very toxic, he said.

Pennsylvanians need to determine the level of risk with which they are willing to live when it comes to those materials, he said.

He asked those in attendance if the rate of environmental accidents related to Marcellus drilling in the state - about 30 incidences out of about 1,900 wells drilled - is good enough.

"That's a question you have to answer for yourself," he said.

Ingraffia challenged comments by state Department of Environmental Protection Secretary John Hanger, who he said predicted 40,000 wells will be drilled in Pennsylvania. About 10 times that amount will need to be drilled in order to harvest all of the gas in the shale, he said.

He also criticized Penn State professor Terry Engelder for saying the industry is learning from its accidents and will improve as a result of them.

The industry has had plenty of time to learn how to develop gas resources responsibly, he said.

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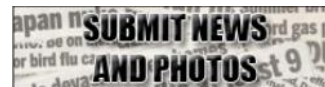
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Boufadel said he is concerned with the long-term environmental impacts of shale gas development. He used as an example the fact that many years after the Exxon Valdez oil spill, the effects of that spill can still be found on the beaches and islands near where it occurred.

He said he was not implying that gas companies are not trying to be careful or are acting with malice regarding the environment.

Boufadel said there is a "serious lack of scientific information" regarding the impacts of shale development.

He also expressed concern that vertical joints and natural fractures in the shale could cause frack water to migrate into groundwater or to the surface.

Boufadel said he was not suggesting such an occurrence would happen but that "it is a scenario that has a chance of happening."

"I'm not saying there is proof (frack) fluid will return to the surface, but I would like somebody to tell me it will not," he said.

He also expressed concern about groundwater contamination from leaks in flowback fluid holding ponds.

Boufadel said more studies need to be done regarding gas industry risks. He suggested the development of "risk maps" similar to those used for flood plain maps.

During a question and answer session at the end of the presentation, Bucknell University geology professor Carl Kirby said he is concerned about radioactive materials contained in gas industry wastewater.

Another attendee said he was concerned about security at well sites, including the ability for people to access equipment or puncture the liners of flowback water retention ponds.

Thomas Murphy, co-director of the Penn State Marcellus Center of Outreach and Research attended the meeting.

Murphy said Penn State is currently involved in the research for which Boufadel is calling. The university is involved in about two dozen research projects dealing with issues such as water quality, environmental impacts, infrastructure impacts and social implications in communities where drilling occurs.

Murphy said about "two dozen" of the 1,800 wells drilled in Pennsylvania have had problems, primarily with methane migration, related to Marcellus drilling. Pending state regulations designed to strengthen well casing standards, which the industry is already embracing, should prevent other such problems from occurring, he said.

"There is no indication of groundwater contamination from the fracking process," he added.

Murphy said research by Penn State and observations by the DEP are showing that it not likely that fractures from the hydrofracturing process will extend into groundwater reservoirs.

Murphy said he disagreed with Ingraffia's claim that it will take 400,000 wells to harvest all of the gas in the state's Marcellus Shale.

Penn State also is working to improve technologies for gas extraction, including new fracturing technologies.

New technology and the use of longer lateral lines will probably result in the need for about half that number of wells to be drilled, he said.

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