

Carnegie Mellon

Department of Media Relations

Carnegie Mellon University
Alumni House
Pittsburgh, PA 15213
412-268-2900
Fax: 412-268-6929

Contact: Chriss Swaney
412-268-5776
swaney@andrew.cmu.edu

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Carnegie Mellon's Jeanne M. VanBriesen Leads Research Team on the Monongahela River

PITTSBURGH—Carnegie Mellon University's Jeanne M. VanBriesen and Kelvin Gregory will use a \$100,000 grant from the Pittsburgh-based Colcom Foundation to study water quality in the Monongahela River.

The focus will be on the presence and effect of bromide associated with Marcellus Shale gas produced water, and sulfate from acid mine drainage, according to VanBriesen, a professor of civil and environmental engineering and faculty director of the Center for Water Quality in Urban Environmental Systems (WaterQUEST).

"The public has expressed increased concern about the produced water that may result from ongoing development of the southwestern Pennsylvania Marcellus Shale formation, which is reported to contain more than 300 trillion cubic feet of natural gas," VanBriesen said.

Developers using hydraulic fracturing, which involves injecting water and sand into major shale formations to help natural gas flow up a well, will need millions of gallons of water to complete the process at well sites. Water that returns to the surface, called flowback or produced water, is collected for reuse or disposal. Disposal at wastewater treatment plants along the Monongahela in 2008 is suspected as a contributing factor in high levels of total dissolved solids (TDS) observed in the river.

Carnegie Mellon researchers will work with the River Alert Information Network (RAIN), a regional association of drinking water suppliers that has been selected by the state to monitor the river quality.

"We will essentially collect data from sensors that RAIN deploys at various sites along the Monongahela River," said Gregory, an assistant professor in Carnegie Mellon's Civil and Environmental Engineering Department. The sensors will monitor for some aspects of water quality, and the Carnegie Mellon team will take additional samples for bromide and sulfate.

Besides the fieldwork, Carnegie Mellon researchers will add data to RAIN's Web-based public information system to promote additional education and discussion among environmental groups about river water quality. WaterQUEST will host a "State of the Monongahela River" event to share data and research about the river.

"Carnegie Mellon's work to understand the water quality impacts from shale gas production in Pennsylvania represents a thoughtful, farsighted effort to avert a problem before it arises. Carnegie Mellon's research resonates with the mission of the Colcom Foundation, which has a long history of assessing and addressing the cause before it's necessary to respond to the symptom. It's a privilege to support Carnegie Mellon's preventative strategy," said Carol Zagrocki, program director of the Colcom Foundation, established in 1996 by the late Cordelia S. May, a dedicated conservationist who served as chairman until her death in 2005.

In addition to the Colcom Foundation, Carnegie Mellon's Steinbrenner Institute for Environmental Education and Research provided seed funding for this research through support of a graduate student researcher.

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