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DANVILLE VIRGINIA

## Students study water near Coles Hill

By TARA BOZICK

**PITTSYLVANIA COUNTY** — Researchers are taking advantage of a unique opportunity to study natural conditions at one of the world's largest known uranium deposits in Pittsylvania County.

Often, researchers say they don't get to study the environment of mineral deposits before they're mined.

Currently, Virginia Tech students are examining the "baseline" or pre-mining conditions around the 119-million-pound uranium deposit at Coles Hill.

"And it's an opportunity because for most ore bodies in the United States, they've already been mined and no one did the baseline study beforehand, so we don't know what the natural conditions are like and how the geology of the area influences the water chemistry," said Madeline Schreiber, assistant professor in geosciences at Virginia Tech. "So that's why we're really interested in it."

This past week, Schreiber and geosciences doctoral student Denise Levitan took water samples from Whitethorn Creek as part of a yearlong geochemical study of nearby surface waters and stream sediments.



Florida State University student Rodrigo Prugue measures a discharge of Whitethorn Creek in Gretna Tuesday. A group of students from Virginia Tech and other universities traveled to the area to conduct the United States Geological Survey's annual baseline surface water sampling.

Naturally, rocks weather in time and release elements into the water, Schreiber explained.

"I'm interested in when you have an ore deposit or a concentration of metals in the geology of an area, how those metals or other constituents go from being in the rocks to the water," Levitan said, adding that maybe the elements are staying in the deposit.

Students also measured the creek's flow,

depth and width. They'll keep coming back to establish a record over time for the creek's flow.

Seven different Virginia Tech student projects, including this one, have related to Coles Hill over the past four years, said geosciences professor Dr. Robert Bodnar. Two students studying sediment transport under civil and environmental engineering professor Dr. Panos Diplas are measuring and mapping the bottom of Banister Lake farther downstream in Halifax County.

"This will probably be one of the best characterized mineral deposits pre-mining," Bodnar said. "I don't think there will be a better set of pre-baseline data."

That's also what brought Bob Seal, geologist with the U.S. Geological Survey, to help Levitan with her dissertation.

Knowing the pre-mining conditions could help know what's best for the adapted ecosystem and could set realistic closure goals, especially as natural conditions at an ore deposit can be above Environmental Protection Agency guidelines, Seal said.

"I'm also hoping more broadly, for the mining community, to set an example," Seal said. "This is a good case study for how to do pre-mining baseline characterization."



Virginia Tech Ph.D. student Denise Levitan records data while measuring properties of the water that might change once they remove the water from the stream while VMI student Michael Mayhew watches on, during the United States Geological Survey's annual baseline surface water sampling at Whitethorn Creek.