

EDGEWISE

Mining is one of four activities that account for the majority of problems around the world related to water quality, according to the United Nations. Other activities on that short list are intensive agriculture, industrial production, and untreated urban runoff and wastewater.

A study that followed up on the 2014 catastrophic collapse of the Mount Polley mine tailing pond in BC found contaminant risks to the drinking water of 33 First Nations and 208 other BC communities, including Smithers, Prince George and Terrace.

Despite a billion-dollar government-funded cleanup at the old Giant Mine on the outskirts of Yellowknife, NWT, a 2016 study of lakes near the mine found that arsenic-contaminated water near the site won't return to its natural state for generations, if ever.

Buckley's research focuses on "green" engineering and chemistry, which is the design of materials, processes and systems that are safer and more sustainable. Identifying environmental contamination is a first step toward safer processes that don't pollute.

Students in the Buckley research group are developing new sensor chemistry in the laboratory and doing field research to pilot new technologies.

UVic's civil engineering researchers are creating a greener, sustainable future for our communities. They're working on green structures and materials; "smart" buildings, infrastructures and cities; industrial ecology; and water sustainability. Info: uvic.ca/engineering/civil/research



Buckley. UVIC PHOTO SERVICES

A UVic engineer is developing an easy way to detect mining's toxic leftovers

by Jody Paterson

Even decades after a mine closes, people in surrounding communities can face serious health risks from drinking contaminated water. Communities in BC's North are particularly at risk of arsenic poisoning due to the legacy of gold and uranium mines, says University of Victoria civil engineer Heather Buckley.

Water is easily contaminated by arsenic and metals that leach out of rock and soil disturbed in the mining process. With no simple, quick or low-cost method for testing water, even short-term measures to address known problems typically end up delayed by weeks or even months until lab results are available.

Buckley is working on a solution. Her research aims to develop a low-cost test strip

Fellow in 2015 by the Fraunhofer Institute for Solar Energy in Freiburg, Germany.

Buckley is hopeful her research will eventually change mining practices. While her current focus is to empower communities to monitor the water supply, she notes that the work also gives companies the tools to show they can do better.

"It creates a space where communities and industries can rebuild trust. It takes away some