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## University of Utah professor warns tar sands process could taint water

Energy • Company insists its Book Cliffs mine is safe.

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The citrus-based chemical that a Canadian company plans to use to strip oil from eastern Utah tar sands will leave tailings that could leach cancer-causing compounds into the groundwater, a University of Utah scientist warns.

The company, Calgary, Alberta-based U.S. Oil Sands (formerly Earth Energy Resources), has said its proprietary process is essentially as safe as orange peels, and it won a state mining permit on the strength of research it shared with the Utah Division of Water Quality.

But the Moab-based group Living Rivers, fearing pollution could reach the Colorado River, has appealed the permit, arguing that the state didn't scrutinize what happens to harmful compounds in tar sands once the citrus solvent pries them free.

"[The solvent] is designed to mobilize these petrochemicals. That's the whole point," said Rob Dubuc, Salt Lake City-based staff attorney for Western Resource Advocates, which is handling Living Rivers' appeal. He has enlisted a U. geophysicist, Professor William Johnson, to testify to that point.

The question isn't whether the citrus solvent or the tar is safe on its own, Johnson said, but what they do together.

"By itself, the tar in this rock is not a problem," Johnson said Monday. "When I was a kid, we used to chew on tar when it came by with the pavers. It's not that soluble with water."

That changes, he said, with the introduction of the citrus solvent — in this case a compound called d-limonene — making the tar's carcinogens mobile.

"You can chew on orange peels, [too]," Johnson said. "I don't know what the toxicity of that stuff is." But by adding it to the oily rock, he added, "you make those tar compounds much more soluble."

Western Resource Advocates filed Johnson's testimony last week in advance of a scheduled May hearing before an administrative law judge.

A state groundwater official did not respond to a request for comment, and the company said it would not comment specifically about the appeal. But company Chief Executive Officer Cameron Todd said the rock left behind won't leach pollutants into the groundwater.

"We've done exhaustive testing," he said. "They haven't done any. Their objective is to stop things. It really is a delay tactic."

Opponents of the mine, which is on leased state land near PR Spring in the Book Cliffs, complain that the company's tests are kept secret for proprietary reasons, keeping them from scrutinizing the results. Todd said the alternative is to release details of the process, tipping off other companies about how to commercialize tar sands. The public must trust the regulators who are charged with protecting their health, he said.

"Any claim that [tar-sands processing] makes it mobile is somewhat ludicrous," he said.

While not privy to the company's precise process, Johnson said there is enough information available about d-limonene to complete simple calculations to show it increases tar's solubility thousands of times. Numbers that the company provided suggest the waste rock will be saturated, he said, and state regulators seem to have taken on faith their claims that the solvent will evaporate.

It won't, Johnson said. By itself it might, but not bound to the tar compounds. The company provided no data to the contrary, he said, and the Division of Water Quality should not have approved the mine without that.

"Water Quality did not do its job," he said.

A state-appointed administrative law judge will hear the appeal in May. If the company is successful, Todd said, it could be producing oil and employing about 100 workers permanently within two years.

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