

## Red Leaf gets nod for shale testing

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GRAND JUNCTION SENTINEL  
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A company with rights to develop as many as 600 million barrels of oil in Utah expects to begin mining shale in the spring for a commercial demonstration project.

The Utah Division of Water Quality on Friday issued a groundwater-discharge permit to Red Leaf Resources, which plans to produce oil from a process in which oil shale is excavated.

A network of heaters and collection pipes will be installed in the pit, or capsule. The shale then is replaced and covered and finally heated to free oil from the rock.

The company maintains that the process won't affect groundwater because the shale mining and heating occurs on or just below the surface.

"We're in the middle of a commercial demonstration project," that isn't likely to produce oil until after 2014, Red Leaf spokesman Jeff Hartley said. "It will probably take a year to construct (the capsule) before we turn on the heat."

Oil shale generally releases oil at a temperature of 500 degrees Fahrenheit, but Red Leaf plans to heat the first batch to 750 degrees and keep it up until oil production falls off, Hartley said.

"We're going to test the heck out of this thing," Hartley said.

The permit doesn't do enough to ensure groundwater monitoring, said Rob Dubuc, staff attorney for Western Resource Advocates.

"In fact, no monitoring at all is being required," Dubuc said.

That's especially important because the prototype will set the standard for commercial development and leave open the question of what impact the capsules will have on the environment, Dubuc said.

Progress on Red Leaf's plans suggests that it will be the first company in the United States to produce oil from oil shale, or marlstone, in commercial quantities, said Jerry Boak, who heads the Colorado Energy Research Institute at the Colorado School of Mines.

Red Leaf holds 20 U.S. patents for its EcoShale technology, which officials said extracts oil with lower energy consumption, emissions, water use and environmental effects than any oil shale technology.

"Not only do we have less environmental impact, our oil is of much higher quality than traditional oil shale production, equal to or better than the industry benchmark of light sweet West Texas Intermediate crude," said Red Leaf CEO Adolph Lechtenberger.

The initial commercial demonstration project is expected to produce more than 300,000 barrels of oil.

Red Leaf Resources estimates it has up to 600 million barrels of recoverable oil under leases on school trust lands in Utah. It hopes to develop those holdings with TOTAL SA, a French energy company. Red Leaf has another estimated 750 million barrels on land leased in Wyoming, which will be developed under a joint venture with the Canadian firm Questerre Energy.

The oil shale deposits are less dense than those found in Colorado, but the Utah and Wyoming deposits are closer to the surface.

The deposits in the Green River formation of Colorado, Utah and Wyoming make up the richest deposits of hydrocarbons in the world.

Efforts to develop the deep deposits in Colorado have centered on in-situ technology, which would heat rock deep underground and draw it to the surface using standard collection wells.

"The fact that Red Leaf Resources will be the first commercial shale mine in North America and can now proceed with their EcoShale technology will serve as an important example that oil shale development can be done in a safe and responsible manner," said Brad McCloud of Environmentally Conscious Consumers for Oil Shale.