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## Invention passes test cleanly

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**Device created by local physicist used to capture pollutants at coal plant**

February 18, 2008 - 4:43PM

By PAM ZUBECK  
 THE GAZETTE

A new device designed to remove pollutants from coal-fired plant emissions exceeded expectations in tests conducted over the weekend at the Martin Drake Power Plant downtown.

The invention by physicist and entrepreneur David Neumann of Colorado Springs could make coal plants burn cleaner as regulators are preparing to lower the boom on polluters.

"Our first live test Saturday at the Drake Power Plant . . . greatly exceeded expectations in terms of its ability to capture pollutants," Neumann said. "We showed that it could capture approximately 90 percent of the sulfur pollutants from the flue gas using only tap water as a capture fluid."

Neumann said it was assumed special additives would be needed, not just water.

Drew Rankin, Colorado Springs Utilities general manager for energy supply, called the results "incredibly encouraging."

"This small-scale test does confirm in the field what the laboratory calculations and preliminary tests were," he said.

The city's investment has consisted of staff time and a couple of pipes to attach the device to the plant.

Rankin said tests will continue on a larger portion of the plant in coming weeks. The initial tests were conducted on the equivalent of one-tenth of 1 megawatt at a 46-megawatt Drake unit. The next test will involve 2 megawatts.

The invention could revolutionize the power industry because standards for sulfur dioxide, nitrogen oxide and particulate emissions will be toughened in coming years. Though control technology exists for nitrogen oxide and particulates, none exists for sulfur.

In coming years, Utilities estimates spending \$65 million to fit one unit at Drake with scrubbers. Annual operating costs are estimated at \$5 million.

Neumann's device is estimated to cost less than \$20 million. Operational costs haven't been disclosed.

Capturing carbon will cost even more, industry officials believe.

Not yet regulated, carbon — thought to be a primary cause of climate change — will be subject to limits, taxes and other measures designed to drive down coal plants' contribution to global warming, industry experts say.

There's no proven technology for removing carbon, but Neumann said he thinks his device also will handle carbon.

Neumann is an [Air Force Academy](#) graduate who holds a doctorate in physics, has worked for the defense industry as a contractor and is doing the emissions work under his company name, Envirolution Systems LLC.

The tests conducted Saturday were repeated several times during an hour, Neumann said. The next tests will last longer and use various substances as capture fluids. Neumann hopes to show that the device, trademarked as the ES Purestream, can capture 90 percent of nitrogen oxide pollutants and 98 percent of sulfur oxide.

Neumann won't discuss details of his method because patents are pending and competition in the potentially explosive market is fierce.

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