



JUDITH WHETSTONE

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By Adam Belz  
The Gazette

**A** cheaper, easier and increasingly popular way to harness the Earth's energy to heat and cool buildings is drawing attention from Linn County conservation officials who think some geothermal systems are wasteful and can damage the environment.

Open-loop geothermal systems — unlike the closed-loop systems more common in homes and small buildings — pump groundwater from an aquifer, cycle it through a building to heat or cool it, then dump the water into creeks or storm sewers.

Several schools in Linn County have open-loop systems, have decided to build them or are considering them.

"We are still concerned that perhaps this is not the environmentally responsible way to go," said Laura Krouse, chairwoman of the Linn Soil and Water Conservation District Commission, who also is a Cornell College biology professor and a farmer.

Schools are choosing open-loop, or "pump-and-dump," systems because they don't require the extensive network of underground pipes needed for a closed-loop system — where water and other fluids circulate and gather heat from the ground before returning to the building.

The bigger the building, the larger the network of pipes required. That means more cost for schools.

Open-loop pump-and-dump systems simply require a well that draws water from an underground aquifer and a way to get rid of the water after it's used.

## On the Net

Want to know more about geothermal energy? See Adam Belz's report at [www.GazetteOnline.com](http://www.GazetteOnline.com)

Cedar Rapids Kennedy High School is breaking ground on such a system

into the cold and snowy weather the next few days, chipping ice and shoveling sidewalks, try not to think about the people who had the sense to get somewhere warm when the getting was good.



Martha Farber  
Writers  
in Florida

Martha Farber, 59, of Dubuque, has lived the pleasant life of a snowbird in Boca Raton, Fla., with her husband, Jim, 63, for the last three years

A flock of Raton, F oceanic winters years, it home at

— spent in Flor for farm mild say "It's words. She nate sh away don she would never again those who are forced to deal with ice and snow. "I was out for a walk with my

► SNOWBIRDS, PAGE 13A

## Share the wire

The state clean for taxpayers with peculiar tax problem. Speltz, 40, is a network technology support manager at PAXTEC in Hillsdale, formerly McLeod/S&C. Jane works part time in religious education when she is not caring for their children. They are among the public figures in a nationwide campaign against the alternative minimum tax on incentive stock options. IST is a calculation system designed to keep high-income taxpayers paying loopholes to avoid paying tax whatsoever. But thousands of technology sector employees who realized a financial windfall were forced into the system because of incentive stock options they exercised as the tech bubble burst in 2000

TAX, PAGE 12A

this spring, and similar plans are in place at Taft and Harding middle schools and Jefferson and Washington high schools in Cedar Rapids. The systems are less expensive to use than traditional ones, adding to their appeal.

"Those are all, at this point, proposed to be open-loop," said Bob Gertsen, project supervisor for the Cedar Rapids school district, which already has pump-and-dump systems at Wilson, McKinley and Franklin schools.

Gertsen said open-loop systems cost roughly one-third as much up front as closed-loop systems. Kennedy's will cost about \$650,000 to install, compared with \$1.6 million for a closed-loop system, according to Shive-Hattery, the Cedar Rapids architectural firm that designed the project.

Also, a closed-loop system would require a school like Kennedy to shut down most outdoor facilities — including its athletic fields — for two years while workers dig holes and bury pipes underground.

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## Heated question

Environment may force change in geothermal energy systems

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Cliff Jantz/The Gazette

Thermometers monitor the water temperature at heat pumps in the geothermal system at Roosevelt Middle School in Cedar Rapids. Such systems have become popular for heating and cooling buildings.

### Geothermal energy in Iowa buildings

A geothermal exchange heat pump uses the Earth as either a heat source, when operating in heating mode, or a heat sink, when operating in cooling mode. In both open- and closed-loop geothermal systems, water or a fluid circulating water is needed to transfer the heat.



Source: www.franzenergy.com and www.waterbubbling.com. Gazette graphic.

► ENERGY, PAGE 12A

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TODAY'S WEATHER

Periods of snow/sleet, windy  
TODAY MONDAY 30-32 11A  
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# Energy/Will discharged water harm streams?

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"That's just not something that we would really be able to do," Gertsen said.

Four elementary schools in the Linn-Mar district, starting with Novak Elementary this summer, are slated for geothermal, and open-loop is an attractive option, said Linn-Mar Business Administrator Dave Nicholson.

The Silurian and Devonian aquifers, which are connected and follow the Cedar River Valley, are very productive aquifers under Waterloo and Cedar Rapids. In Johnson County, where the aquifers are less productive, there are few, if any, open-loop geothermal systems, officials say.

Commissioners and officials in the Linn Conservation District want school districts and the public to slow down and take a more precautionary approach to open-loop systems.

They have two concerns: the amount of water coming out of the aquifers, and what that water will do to the Earth's surface.

During cold winter months, just at Kennedy, about 720,000 gallons of groundwater will be pulled from the aquifer each day.

Most of it will end up in McCloud Run, an urban trout stream, and flow into the Cedar River on its way to the Gulf of Mexico, said Commissioner Robert Broulik, a

farmer from Lisbon who objects on principle to using water that way "when you don't have to."

In Black Hawk County, more than 50 wells at the University of Northern Iowa and hospitals, schools and businesses pump somewhere between 5 billion and 10 billion gallons of water from the aquifers each year and dump it into creeks and storm systems, said Brett Meyers, a health officer at the county's Department of Public Health.

The aquifers probably can handle all this pumping, but no one can say for sure, said Mike Gannon, a geologist and groundwater specialist at the Iowa Geological Survey Bureau in Iowa City.

The Geological Survey last month launched a long-term study of the state's underground water supply, beginning in northwest Iowa. Its staffers are developing a computer model to predict how withdrawals affect aquifers.

"The problem is, if you lower it too much, the shallower wells have the potential of going dry," Gannon said. "Short term, I'm not too worried about it. But if you get enough of these in, you've got to think about 10 years down the road."

Gannon said it's written into pump-and-dump well permits that the Department of Natural Resources can at any time begin to require that water be piped back to the aquifer.

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## Tax/Stock had plummeted

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and 2001. "Absolutely panic-stricken" was how Ron Speltz described his feelings on opening a letter from the IRS rejecting his request for a tax settlement earlier this month. Attempts to pay the tax obligation and keep up with penalties and interest have drained the family's finances.

Despite Ron's high-paying job at PAETEC, the Speltz family's finances are so tight that expenditures once considered mundane, like enrolling a child in a special school program, have become monumental choices.

"The stress at home is astronomical," Ron said.

### Legislative relief

The Speltzes' hopes rose last week when Sen. Chuck Grassley, R-Iowa, joined the co-sponsors of a bill introduced by Sen. John Kerry, D-Mass., that would halt collection of the unpaid tax obligation.

Grassley is the ranking Republican on the Senate Finance Committee, which must pass the measure before it goes for a full Senate vote. The House version of the bill was championed by Rep. Dave Loebsack, D-Iowa.

### No deal with IRS

The last resort for the Speltzes was to seek a deal with the IRS. On Feb. 2, they got a letter saying they didn't qualify for the IRS "Offers in Compromise" program.

IRS.com/compromise/WhatIsCompromise.html

than \$700,000 in grant money has been poured into the stream to improve its quality and even out its temperature over the past four years.

Krouse, of the Linn conservation board, thinks the water coming from the Kennedy geothermal system will change McCloud Run to some extent, given that it's deoxygenated, warmer than



**Laura Krouse**  
Conservation commissioner

the stream and possibly high in metal content.

"Let's say the temperature is only one degree different," she said. "That might matter ... Any time it's not the ambient water, it's going to degrade the ecosystem."

Also, she said, if schools have to add reinjection wells, or cities have to add storm sewer capacity to handle geothermal dumps, all those items cost money and represent potential hidden costs to the taxpayer.

And while she and other conservation commissioners acknowledge that geothermal

systems are easier on the environment than conventional heating and cooling systems are, they would like to hold an educational event to discuss the issue.

People from government, conservation agencies, local school districts and the public, as well as other officials, met in Marion in January to talk about it, but commissioners think more public discussion is needed.

"We just want to talk about it more," Krouse said.

■ Contact the writer: (319) 398-8273 or adam.belz@gazettecommunications.com

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"They put it in as a potential requirement," he said. "If we reach a level of concern, basically every permit that comes in, we're going to require reinjection."

But drilling a reinjection well could cost as much as \$100,000 at each school, said the Cedar Rapids district's Gertsen, and power to run the pump also would add costs.

What all the water, after its use, will do to streams on the surface is another issue.

McCloud Run will be the direct recipient of the water that flows through the geothermal system at Kennedy. More

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