GE's pump and treat sytem suspect, say state, federal regulators

State environmental regulators asked GE to remove it. The Rome City Commission asked GE to remove it. The Floyd County Commission asked GE to remove it. Citizens and citizens groups asked GE to remove it.

But the corporate giant, with its deep pockets and legions of attorneys, ignored those requests, and the 2-acre landfill that threatens groundwater beneath the GE site remains in place.

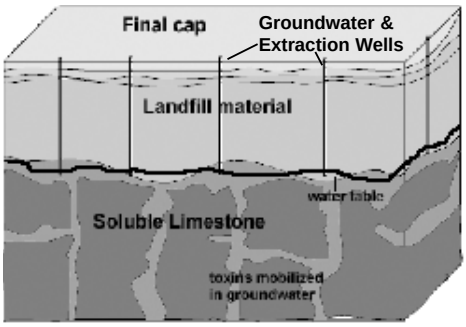
GE's remedy is to contain PCB contamination in Landfill A. Its success depends upon a sophisticated groundwater pump and treat system that, while proven effective in other geological conditions, may not work in the unique geology underlying the Rome site, according to state and federal environmental regulators.

Late last year, GE proposed a similar remedy for highly contaminated commercial property on Redmond Circle adjacent to the former manufacturing facility prompting immediate objections from EPD and the U.S. Environmental Protection Agency (EPA).

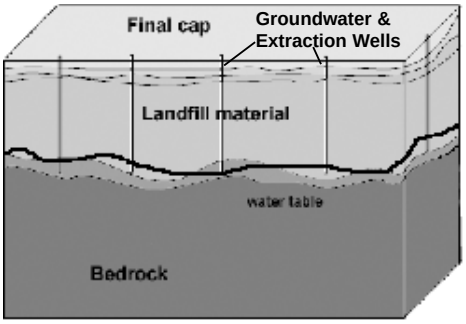
The karst geology beneath the GE facility and adjacent property looks something like Swiss cheese with the holes connected by numerous fractures. These fractures permit groundwater to migrate, acting like pipes that carry PCBs and other material from contaminated soil into the groundwater.

Opposing views of Geology beneath GE-Rome site

CRBI's View



GE's View



The bottom illustration depicts GE's simplified view of the geology underlying Landfill A and its pump and treat groundwater system at the GE-Rome site. The top illustration depicts a more accurate view of the unique karst geology beneath the site. State and federal environmental regulators say that because of the numerous fractures in the soluble limestone beneath the landfill, pump and treat groundwater systems can be unreliable.

Unlike other soils that help filter contaminants before they can reach groundwater, these fractures permit groundwater to come in direct contact with contaminated soils and then migrate throughout the groundwater system. And, while some water-containing fractures may be contaminated; adjacent fractures may be free of PCBs. In this maze-like system, predicting where groundwater will flow can be a gamble.

In recent correspondence with GE, EPD and EPA contend that because the karst fractures are so numerous, locating and mapping them is virtually impossible, making any pump and treat system suspect. They also contend that the pump and treat system itself can introduce contaminated groundwater into fractures containing clean groundwater.

In a Nov. 25, 2002 letter to GE concerning its cleanup plan for the commercial property, EPD director Harold Reheis wrote, "Reliance upon a pump and treat system to try to contain the high levels of contamination in a karst environment present too great a risk to accept for virtual perpetuity."

Additional correspondence warned GE, "Effectiveness monitoring will be difficult and we may not know what benefit or damage the pump and treat system has caused for years. We may not detect aquifer damage until it is quite substantial."

While regulators are currently grappling over a pump and treat system at commercial property, the system installed around Landfill A has been in operation since June 2001.

The system extracts groundwater in an attempt to prevent it from reaching landfill material. Once above ground, the water is treated to remove PCBs and then sent to the Rome sewage system.

EPD has received two reports from GE that show the system appears to be adequately protecting groundwater, according to Jim Ussery, hazardous waste management program manager for EPD. But EPD remains cautious.

"It seems to be working," Ussery said. "But the concern that you always have is, in that kind of geologic setting, flows go through cracks in the rocks, and you may not be seeing what is really happening."

In addition to ongoing reports, EPD will evaluate the system every five years.

EPA has called groundwater under the site a current and future drinking water source.

Tests show PCB concentrations in groundwater below the contaminated commercial properties as high as 97 parts per billion (ppb). The state's maximum allowable contaminant level is .5 ppb.

Unlike PCBs in streams and rivers which tend to attach to heavy organic matter and settle on the bottom of the waterways, the groundwater underlying GE's Rome site is filled with tiny solids and volatile organic compounds that keep PCBs suspended in the water column and contribute to their mobility, according to EPD documents.

PCB Q&A

(such as humans, bears, etc.) are at the greatest risk of accumulating large doses of PCBs. PCBs are not soluble in water and tend to settle to the bottom of rivers, lakes and streams where they may be "re-released" into the environment during natural events such as floods. PCBs may also be vaporized and become airborne, traveling long distances and returning to Earth during rain events.

How are humans contaminated with PCBs?

Currently, the greatest risk of contamination is by ingesting contaminated food, in particular meat, fish, poultry and dairy products. However, humans may also be contaminated through contact with contaminated soil or by breathing air containing vaporized PCBs. If expectant mothers have been contaminated, the contamination can be transferred to the unborn fetus through the placenta. Once born, the infant may be further contaminated through breast milk.

Do PCBs cause cancer?

Yes. The U.S. Enivironmental Protection Agency (EPA), the International Agency for Research on Cancer, the National Toxicology Program and the National Institute for Occupational Safety and Health all concur that PCBs are probable carcinogens in humans. There is clear evidence that PCBs cause cancer in animals. In humans, a number of studies of workers exposed to PCBs found increases in several types of cancer. Additionally, because PCB mixtures change once they are

continued on page 11