

Interest renewed in water recycling

Chemicals at issue in toilet-to-tap revival

By Kathryn Balint

STAFF WRITER

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If the city of San Diego revisits a controversial plan to turn sewage water into drinking water, one of the key issues will be whether the treatment can remove chemicals such as those contained in birth control pills and antibiotics.

The idea of using highly treated, reclaimed sewage water for drinking, killed in 1999 by the San Diego City Council, has been revived by a coalition of environmental activists who say the city needs to make better use of its reclaimed water before dumping it into the ocean.

The activists, calling themselves the Bay Council, represent the Sierra Club, Surfrider Foundation, San Diego BayKeeper, Audubon Society and Environmental Health Coalition.

They want the City Council to conduct a one-year study of how to use more of its reclaimed sewage water, including the idea of adding highly treated reclaimed water to a drinking water reservoir.

A majority of San Diego City Council members, sitting as the Natural Resources and Culture Committee, supports a study; the full City Council is expected to take up the issue early this year. The study's cost has not yet been determined.

Councilwoman Donna Frye wants the study to look at the issue of pharmaceutical chemicals in the reclaimed water. She referred to them as "gender benders," for the hormonal effects they have been shown to have on some animals. The scientific term is "endocrine disrupter."

Male fish exposed to these kinds of chemicals have taken on female characteristics. In other animals, research has found that endocrine disrupters have interfered with everything from the ability to breed to mating behaviors.

The U.S. Environmental Protection Agency says it is not known how endocrine disrupters may affect humans. Studies are being conducted.

Their presence in wastewater is not routinely measured or regulated.

Water reclamation advocates such as Harold Bailey say technology now can remove most of these chemicals, and those that remain would be inconsequential to the purity of the water.

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Studies have shown that reverse osmosis is the most effective in removing these chemicals.

"Virtually all of the contaminants would be gone, or they'd be reduced to a level that's lower than that required by the health department," said Bailey, director of operations and water quality for Padre Dam Municipal Water District.

Bailey is also chairman of the WaterReuse Foundation's research committee, which is sponsoring studies on the issue of endocrine disruptors. The Water Reuse Foundation is the educational arm of the WaterReuse Association, a national nonprofit organization that promotes water recycling.

There are no projects in the United States in which reclaimed water flows directly through customers' faucets. Four water districts in California do percolate highly treated reclaimed water through soil into groundwater used for drinking.

Daniel A. Okun, an expert on water quality, opposes using reclaimed water for drinking if other, cleaner sources of water are available.

Okun said there is no question that the technology exists to turn sewage water into drinking water. But drinking it comes with a higher risk, he said.

In 1976, the EPA was requiring municipalities to test for 22 contaminants in drinking water. By 2001, with the discovery of new contaminants, that number had gone up to 91.

Okun, a retired University of North Carolina environmental engineering professor, said there are close to 100,000 potential contaminants of water. Many are undetectable with current testing and there have been no studies to determine their health effects, he said.

"To use toilet water for drinking just doesn't make any sense," said Okun, who opposed San Diego's plan in the 1990s to add highly treated reclaimed water to a drinking water reservoir. "Why take the risk? There's no point in exposing the populace to the risk of an accident, equipment failure or human error."

Bailey said the risk of accidents is minimal because multiple treatments would be used. What one process misses, the next one would filter out, he said.

The "reservoir augmentation" plan that local environmental activists have in mind would be almost identical to the city of San Diego's "toilet-to-tap" project that was in the planning stages for six years before being abandoned in 1999.

Under the old plan, approved by the state of California, wastewater treated at the North City Water Reclamation Plant in University City would have undergone more intensive treatment at a second facility. There, the water would have been forced through membranes with pores so fine that only the tiniest water molecules would get through, filtering out viruses, bacteria and other pathogens.

After being treated three more times, the water would have been piped 23 miles east into San Vicente Reservoir, north of Lakeside, and mixed with raw water. From there, the "repurified water," as the city called it, would have been treated again before flowing from the faucets in some San Diego neighborhoods.

Robert Simmons, an attorney for the Sierra Club and a spokesman for the Bay Council, said that this time around, the city should plan to deliver the water to everyone.

The Bay Council raised the issue of reclaimed water in negotiations with the city to settle a lawsuit over the level of treatment at the Point Loma Wastewater Treatment Plant.

Simmons told the council's Natural Resources and Culture Committee that more than 20 million of the 25

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million gallons of sewage handled at the North City Water Reclamation Plant gets dumped in the ocean. By treating it more, and adding it to a drinking water reservoir, Simmons said the city could augment its drinking water supplies.

He and other supporters of using reclaimed water for drinking noted that more than 200 municipalities, including Las Vegas, discharge their sewage into the Colorado River, which supplies drinking water to San Diego. Opponents of the reuse proposal say that sewage in the river is highly diluted and purified by natural processes.

While there is little opposition to using reclaimed water to irrigate landscaping, opponents already are lining up to object to its use for drinking.

Former City Councilman Bruce Henderson, former state Assemblyman Howard Wayne and a grass-roots group that calls itself the Revolting Grandmas, cite the risks of endocrine disrupters as one of the reasons they object to the city spending any money even studying a new reuse project.

Others, including Rick Gersberg, a professor of public health at San Diego State University, favor taking another look at the concept. Gersberg said he was a "skeptical proponent" of the idea in the 1990s, and had raised concerns about endocrine disrupters then. Still, he said, he thinks such a project could safely protect public health.

Kathryn Balint: (619) 293-2848; kathryn.balint@uniontrib.com

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