

# There's a 'green' way to treat, reuse wastewater

Under pressure from the Environmental Protection Agency for serious violations, including numerous raw sewage spills, the City and County of Honolulu plans to spend more than \$1 billion over the next decade retrofitting an obsolete wastewater system that may never meet current, let alone future, environmental standards.



**JOHN WILKINSON AND STEVE ABDALLA**  
IN OUR OPINION

While these plans were perfectly reasonable when first drafted, over the last few years a less-expensive, dramatically cleaner, odor-free, whisper-quiet and easier-to-implement technology has emerged, has been proven and is currently operating here in Hawaii.

Honolulu's current wastewater treatment system, largely built more than 40 years ago, is highly centralized, with two primary wastewater treatment plants at Sand Island and Ewa Beach, fed by hundreds of miles of decaying sewer pipe.

The systems can't possibly keep up with

inspection and maintenance requirements, growing sewage volume and elevated clean water standards. According to a 2007 lawsuit by the Sierra Club of Hawaii and others, the city is responsible for more than 17,000 violations of the federal Clean Water Act.

The current system is analogous to the archaic mainframe-based computer processing system, with fraying wires running throughout the city, gathering ever-increasing data to be processed in a central facility.

With today's computer technology, we would not upgrade the mainframe and replace the wired network; rather, we would perform the data processing locally, using high-powered personal computers and Internet-based technologies, yielding a more powerful system with substantial capital savings. A comparable solution now exists for wastewater treatment.

It is now possible to convert raw sewage locally to create reusable "R1" water and supply a local distribution network. R1 water meets the standards set by the state Department of Health and can be used for irrigation, fire suppression, cooling, commercial laundry, flushing water for toilets, water jetting, cleaning of roadways and parking lots, as well as satisfying many industrial water demands.

In fact, the City and County of Honolulu is currently operating one such

system; however, because of the massive quantities of wastewater processed, the supply of reuse water generated is often greater than the demand for the distribution area.

When the wastewater is treated and used locally, there is a reduction in the operation and maintenance costs for the collection system and reuse water distribution system, as well as a substantial reduction in the energy demand as the water no longer needs to be moved from one side of the island for treatment and back again for reuse.

Given the availability of proven, cheaper and environmentally cleaner systems, it makes no economic or environmental sense to spend billions of dollars, and rip up hundreds of miles of roads, to upgrade our obsolete wastewater infrastructure. The new systems can be implemented in months, not years, due to a standardization of design which greatly reduces engineering requirements.

Two such systems are in place on the Big Island, at the Seascapes and Waikoloa developments, and approved for the community at Palamanui. Four other plants are pending.

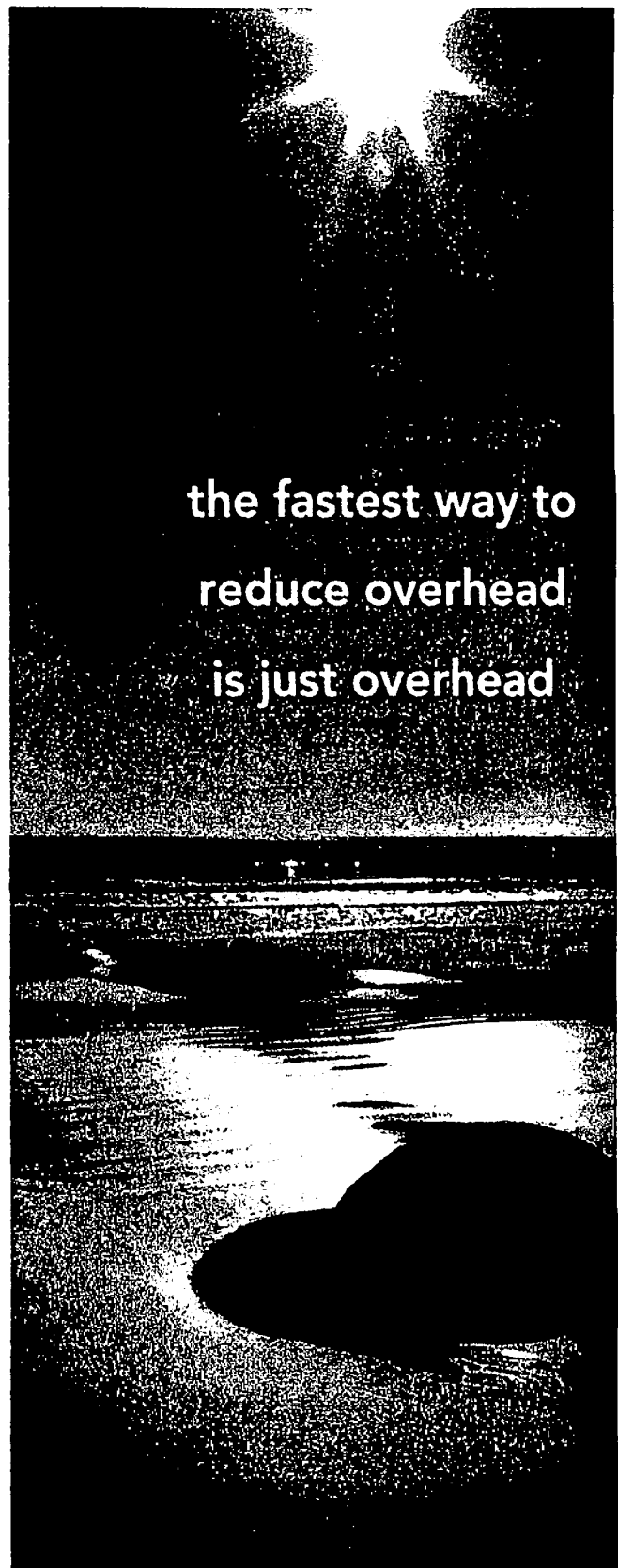
These fully operational and self-contained systems were implemented at less than half the cost of upgrading existing plants, use about one-third of the space, are fully computerized and operate with lower labor costs. They are odorless, whisper quiet and treat more than 500,000 gallons per day of raw sewage.

The newest systems use technology to enhance and accelerate natural biological processes, with minimal use of chemicals, to process waste. The plants are readily scaleable from 50,000 gallons per day (500 people) to 10 million gallons per day (100,000 people).

On Oahu, the likely approach to implementing the technology would involve 20 to 50 smaller plants strategically located. They can be installed in areas of about one quarter to one acre, and built beneath an existing building or structure to minimize real estate costs. Loads on existing pipes would be reduced significantly, diminishing the need to dig up our busy highways to replace them.

The new technology is a dramatic shift from the current plans and approach, so naturally government agencies and private contractors need time to thoroughly evaluate the technology. But if the technology has the potential to push Hawaii to the forefront of environmental preservation, and save hundreds of millions of dollars, doesn't it deserve a thorough examination?

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