



**Business** - Technology

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## Water company ready to set sail

**Floating desalination plants to be less harmful to sea life, experts say**

By TOM FOWLER

Oil and water don't mix, but a Houston company hopes a \$250 million investment will bring about a happy marriage between the two.

Water Standard Co. plans to use the funding from two private equity firms to convert oil tankers into floating seawater desalination plants, able to bring drinking water to any coastline around the world. In addition to being mobile and self-sufficient, the ships will use patented technologies the company says are less harmful to sea life than land-based plants.

Amanda Brock, a former Enron executive who is now Water Standard's CEO, has spent the last year meeting with potential government and industrial customers from California to Dubai to Australia, pitching the technology as an alternative to land-based projects.

"The desalination process is hardly new, but finding a way to do it in an environmentally sound, cost-effective way is," Brock said. "With the funding we hope to be in a shipyard putting together one of our first ships within months."

There are about 12,000 desalination plants around the world, many of them in the Middle East, producing millions of gallons of drinking water a day. Some are on barges, but not on self-propelled vessels.

Most existing plants use a process called distillation — essentially boiling water and condensing the salt-free steam. The process has been around for more than 100 years but is energy-intensive.

Desalination plants built in the last 10 years mostly use a technology called reverse osmosis, which involves pushing the seawater through a series of thin membranes at high pressure to filter out the salt.

Ben Movahed, president of WATEK Engineering, a Maryland firm that has worked with Water Standard to design its process, said reverse osmosis plants tend to be smaller than distillation plants, but use only about half as much energy to produce fresh water.

Water Standard plans to put a reverse osmosis plant on a modified oil tanker and then sail the ship to its customers. These could include a growing coastal city struggling to meet its water needs, a disaster area, or a chain of islands looking to avoid land-based plants.

It's a seemingly simple idea, but the difference is in the details, namely how the water is drawn from the ocean and the waste salt is sent back.

Land-based desalination plants usually draw water from relatively shallow waters close to land, where the water is more likely to be tainted by runoff and where there's more sea life in the juvenile stage, said George Somero, a marine biologist at

Stanford University who has reviewed Water Standard's technology for some California utilities.

"But if you're drawing in the water at depths below where a lot of larval and planktonic life is" — as the Water Standard system does — "there's a lot less impact on the ecosystem," Somero said.

The Water Standard system also dilutes the brine removed from the seawater by mixing it with other seawater before discharging it.

This isn't the first time Brock has waded into the water business.

She was known by her maiden name, Amanda Martin, while she was working at Enron from 1991 to 1998. A lawyer by training, she headed a division that financed, built and managed assets overseas.

When Enron spun off its water utility, Azurix, Brock joined that company to head its operations in the Americas. The business later shut down, but it was not tied to Enron's bankruptcy.

Brock said she joined Water Standard in 2006 after the company's founder, entrepreneur Andrew Gordon, had "done as much as he could do as a scientist."

The \$250 million infusion from two large private equity firms — which she declined to identify — should be completed this week.

Brock said she'd rather not let her days at Enron overshadow her current work, but she's not shy about her tenure there. "I love to point out Azurix never filed for bankruptcy," Brock said.

Her work with Water Standard has some of the demands of her past work — lots of travel and long hours. But she says it's different.

Brock recently overheard her sons telling friends how the company's ships could bring drinking water to impoverished parts of the world.

"I know it sounds canned," she said, "but there's more opportunity in the water business to do good and at the same time build a company."

