

## Fremantle Commercial Diving creates robots that clean drinking water systems



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Cleaning drinking water systems can be expensive, time consuming and an OH&S concern for many utilities, but one company has turned its attention to creating a range of fit-for-purpose robotics for Australian utilities.

Set to launch Watertight Robotics at this year's [Ozwater'18](#), Fremantle Commercial Diving (FCD) Manager Antony Old said the company wanted to provide a safer and more cost-effective solution to drinking water tank cleaning for its customers.

“In drinking water systems, tanks need to be cleaned out regularly. Currently that is done by using divers, which is a service our company has been providing for 30 years, or by draining them out,” Old said.

“Draining and cleaning is a fairly antiquated way of doing it. It wastes a lot of water, it’s time consuming and it is fairly resource heavy. Diving is fairly quick and efficient, but there is an elevated risk profile that a lot of utilities don’t like, and it is relatively expensive.”

Old said FCD found a “large gap” in the global robotics market, in that many of the machines available were not suited to Australian drinking water systems.

“We decided to look at technology, to try and engineer the human factor out of doing that work. We looked at the global market and realised there are only two manufacturers in the world that are building robots for drinking water tanks,” Old said.

“There are lots of underwater robots out there, but you can’t have robots that rely on thrusters to move because they stir up sediment. You need robots that crawl on tracks, like little tanks, but most of the robots that crawl on tracks have been designed for the oil and gas industries.

“They run on hydraulic systems – oil is pumped through the robot. You can’t run hydraulic systems in drinking water because there is a risk of blowing a hose and polluting the drinking water supply.”

As such, FCD decided to launch its own line of drinking water tank robotics and has modified existing models from Sweden and the US to ensure they are fit for Australian assets.

“We took existing robots and modified them extensively for Australian conditions. There have been a lot of changes made, especially around water efficiency. Also, some of the asset types in Australia are different to overseas and require different capabilities,” Old said.

“The robots that we’ve got are either oil-less or they have very small amounts of food-grade oil that is double sealed inside the pump housing. They are safe to go into drinking water because they don’t stir it up and they are not going to compromise the water quality.”

Watertight Robotics now has a functioning fleet of robots of different sizes and designs, which can clean everything from very small assets, right up to reservoirs of 20,000m<sup>2</sup> or more.

“There is only one of other robot in Australia designed for drinking water tanks and it is very small. It is limited in what it can do. We recognised very early on that to clean Australian-sized systems we’d need different sizes and capabilities,” Old said.

“We also have robots that are able to reach elevated surfaces. We can do all sorts of tricky things that haven’t been done before. We wanted to provide a genuine replacement for diving that offers the same standard of cleaning.”