

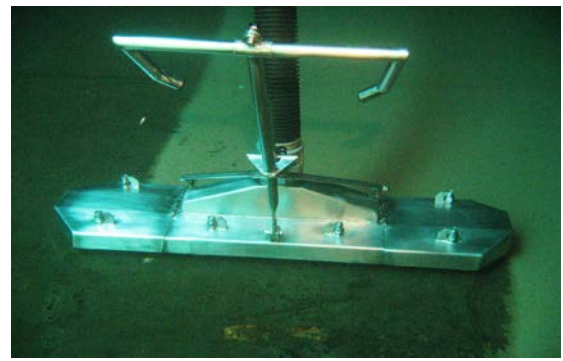
RESERVOIR CLEANING 101

Drinking water storage tank cleaning is carried out to maintain water quality and to monitor the condition of the structure. Many water supply providers now use the diver vacuuming method to clean their tanks, rather than isolate the tank for days and place personnel into confined spaces with the traditional drain and sweep methods.

Diving into potable storage tanks has become an accepted maintenance discipline. This is probably the only type of diving where the water is more at risk from a diver, than a diver is at risk from the environment. A new set of safety rules had to be formulated to satisfy both OH&S and water consumer expectations.



There are three different vacuum heads in use, to cater for large and small tanks, thick and thin sediments, and the 'unexpected' fittings and fixtures within a tank, that cleaning robots struggle with. The wheels are adjustable to allow for 'fine tuning' during cleaning – sticky sediments need the vacuum skirts to be rubbing on the floor and deeper, loose sediments require more clearance to suck up effectively and more than one vacuum head is often used during a tank cleaning operation.



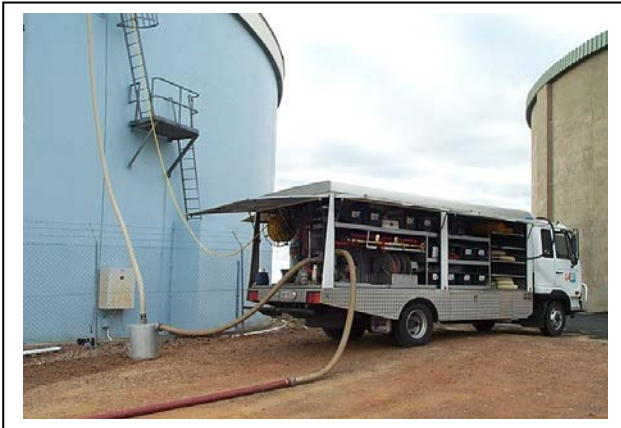
It is important to be 'potable water dedicated' and have the mentality of "if we don't drink it, we don't dive in it". This includes the vehicles, all the external and internal equipment and the personnel. The water industry has spent much time and effort in separating water and sewer operations and this would all be for nought if someone knowingly (or unknowingly) contaminated our drinking water with waste substances.

Dry suits and full face masks are a 'given' and there should be plenty of additional suits available onsite to allow for 'wear and tear' and also hot and cold weather conditions.

Disinfection can only reach the superficial areas of hoses, ropes, dive equipment and storage vehicles. There will always be residual water left in the vacuuming hoses when moving from tank to tank and from client to client, so strict hygiene practices and being particular about where the equipment and personnel have been, are the best options to maintaining water quality and consumer confidence.

Each tank has a different lay out of posts, pipework and other internal fixtures that need to be considered when an effective vacuum pattern is decided upon. A good pattern creates efficiencies and ensures that no sediment is unnecessarily disturbed or left behind in the 'hard to access' areas. Raised floor joints, pipework supports, post bases, ladder platforms and wall floor steps all need to be considered in the cleaning process.

Good suction is a corner stone of the vacuuming process and this can be achieved in two main ways: Pumping over the top of the tank – this requires the tank to be at least 80% full for the pump to prime effectively. Using this method ensures that the diver can enter the tank and commence vacuuming straight away. This method is recommended when cleaning a tank for the first time, as scours may be screened, inaccessible or inoperable.



The scour can be utilised to create suction, by placing a plug in the penetration and opening the external scour valve. Various sizes and shapes of scour plugs are carried to cater for most scenarios, however the scour should be close to the diver's point of entry to avoid disturbing the floor area sediments unnecessarily. Deeper tanks often have the water levels reduced to increase the diver's available working time, so the scour method is the only option, when water levels are less than 80%.

