

Anton Liebenberg: Aquadam



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Q. Can you give me a brief overview of Aquadam's Muleby System Tank for the municipal and industrial sectors, i.e. how long have the tanks been around, where did the concept originate, dimensions of the tanks, type of materials used in the production of the tanks, durability, etc?

A. Aquadam's Muleby System Tank originated in Muleby in Belgium with the MST1. The Muleby Tank system is a prefabricated, modular concrete tank. This tank uses the old technology of pre-stressing and post-tensioning. For the first time in South Africa, pre-stress and post-tension is used in unison, making use of concrete best asset as it functions best under pressure. High quality pre-cast, pre-stressed elements are placed on a site-specific, cast in situ concrete floor. Poly ethylene-coated post-tension cables are fed through the elements and post-tensioned in the horizontal direction to pressures in excess of 135 KN. These tensions are calculated for the tanks' specific application. These cables are placed internally and the stressing point closed to protect against corrosion.

The Muleby System Tank has been used by Famitec in Europe for the last 35 years for storage of potable water through to manure. Currently, the newer version MSTs, the MST1a, MST2 and MST3 are being manufactured for the building of bigger water treatment plants and water storage facilities. Aquadam is manufacturing the MST1a locally, under license to Famitec in the Netherlands. The MST1a gives us the capability to construct reservoirs ranging from a 8.6m diameter, with a depth of only 3 m, up to a 33 m diameter, and a depth of 7 m, storing 178 000 litres to 5.7 million litres. Plans are in place to start producing the bigger MST2 in early 2012. The MST2 will allow us to up to 8 m in depth, a diameter of 78 m and a capacity of 32 million litres.

Q. Name the areas of application of the MST

A. The MST is a storage structure, storing what can range from potable water to certain chemicals and molasses to treatment plants and biogas fermentation tanks.

Q. What are the top five features of the MST, in particular, with relation to water purification plant applications?

Being a prefabricated concrete tank, the mix design of the concrete can be manipulated in the controlled environment of the casting yard. This giving us the flexibility to change the mix design for specific applications or environments without compromising on the exceptional quality. The elements can be given exceptional protection against chemicals where it is needed. Pre-cast also allows for exceptional quality control and ensures the correct curing of the product.

The relatively slender elements allow for very competitive pricing and less use (wastage) of concrete steel reinforcing, and also assures a smaller carbon footprint.

The ease and speed of the installation saves time, which in itself is a big money saver, but also means more facilities can be produced in the same period of time, thus resulting in better service delivery.

Not using shutters and props at great heights makes it very safe to install, which is another big time and money saver.

Aquadam concentrates on the production and installation of the elements and prefers the main contractor to cast the specified floor, which allows for local, smaller upcoming contractors to erect huge treatment

plants without forfeiting quality or spending months or years just building the storage facility. It give them the opportunity to do what they are good at, and this also gives the municipality peace of mind in that it is supporting local business.

Q. Apart from the MST, what other tank products does Aquadam have on offer and are any or all of these tanks suitable for the municipal sector? If so, where are the tanks being used or implemented?

A. Apart from the MST, Aquadam offers the durable, seamless gunite reservoir. With the capacity to be built in sizes ranging from 4.5 m in diameter x 1.6 m in depth, up to 30 m diameter and 2.4 m depth (25 Kl to 1 300 Kl). These reservoirs can be left open or can be covered with a concrete or corrugated steel roof. A vast amount of these smaller maintenance-free concrete reservoirs are in use in small communities as potable water storage tanks and break pressure tanks. These reservoirs are also very popular in the farming community, which is probably our biggest market.

In keeping with our company mission of giving the client the best water storage solution in the shortest possible time, we also have the Future Tank. These tanks are like the MST – a modular tank – but are comprised of zinc aluminum coated steel panels, bolted together in a circular structure. These structures are fitted with a plastic liner and corrugated roof. These tanks are also widely used by municipalities and the mining sector for their speed of installation and flexibility in terms of being erectable in very inaccessible terrains. They are also quite popular for their semi-permanent status.

Q. Can you cite two recent water infrastructure projects that Aquadam has been involved in, and which tanks were selected for these projects and why?

A. Xtrata Eland Platinum Mine, where we are doing two mine water return reservoirs. Water coming from an existing clarifier is stored in these tanks to gravitate back to the machines working underground. They decided to use the 7 m-high Muleby system tanks. Reasons given for the use of these tanks: the high quality of the design and huge





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savings on the cost and the safety of the installation. DRA Minerals are also using our Muleby tank system for, essentially, the same reasons, and they simply love the design. According to our clients, the quality, at the cost, is simply out of this world.

Q. Having worked with municipalities, what are the repercussions of not using quality materials and technology in water infrastructure installations, for example at wastewater treatment plants and water purification plants?

A. During one of my recent site visits to Limpopo, I visited a project that had been running for almost six years in an attempt to construct a reservoir and tie it into the existing reticulation system. After six years, it was still not functional – what a waste of time and money! As we all know, black water, i.e. untreated sewerage, is a killer. It kills people, animals and vegetation, and this is one thing you don't want left untreated. Poor quality products leads to leakage and this leads to extra time and money that has to be spent in order to rectify the problem. Down time on this facility lets these killers run free. The effort and money spent on water infrastructure must be undertaken with great care.

Q. During your work experience, can you identify the worst affected municipalities in terms of ageing water infrastructure, and cite a few examples if possible?

A. It is very difficult to point out one specific municipality, but we feel that this is a challenge we should all take to heart and attempt to

assist the various municipalities to do the best they can with their limited budgets. This is not just a municipal challenge as it affects all of us.

Q. On average, do you know how much a municipality spends on repairs/rehabilitation of ageing water infrastructure, and can select quality materials from the outset aid in reducing these maintenance costs?

A. I have no idea how much is spent on repairs and rehabilitation, and I feel it is a waste to spend good money on an old, mostly inadequate and inefficient system. In my humble opinion, especially in the treatment industry, there is a lot of new technology that we can implement. South Africa is not unique in the challenge of 'more people, more waste'. We must learn from the rest of the world, but also support local companies as some of our local businesses have better solutions than our international counterparts.

Q. Any additional comments you would like to add?

A. We want to share government's new point of view of using local products to solve our domestic markets needs and keep South Africa's money in the country for the growth of our economy. In South Africa, we can still safely drink water from a tap. In places in the rest of the world you must pay a huge amount of money just to get water, and then it is not even safe for drinking. We take the water in South Africa for granted even though we are a dry country. If we don't take care of one of our most vital resources, we, together with our children, will pay dearly. We can all make a difference – even a small difference counts. **3S**



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