

WATER & AFRICA sanitation

Complete water resource and wastewater management

www.3smedia.co.za Vol 3 No 1

July/August 2008

2ND
Anniversary issue

MEET PAMELA YAKO

DWAF's new DG

SA'S R50 MILLION

Water fountain

CASE STUDY

Leak detection
inspection



AMATOLA WATER
Celebrates 10 years
of water
serv

Asha Pursotham
Distribution co-ordinator

Tel: +27 (0)11 531 3335
Fax: +27 (0)11 440 1516/1579
Cell: +27 (0) 83 353 5573
E-mail: asha@3smedia.co.za


3sMEDIA

PICTURES
WISA 2008 Conference



Aerator solution for WWTP

Pictures courtesy of Circuit Environmental Engineering

IN 1990, CIRCUIT ENGINEERING began importing the Aire-O₂ Triton Aerators from the United States. With over 60 000 installations of the Air-O₂ Aerators currently in operation worldwide, Aeration Industries is one of the world's leading aerator companies. This month, **Water&Sanitation Africa** spoke to Ryan Beswick, director of Circuit Environmental Engineering, to find out more about these exceptional aerators and the strong ties between Circuit Holdings and Aeration Industries.

Beswick explains the origins of the Circuit Engineering-Aeration Industries relationship: "Circuit Engineering was started in 1980 by my late father – Jack Beswick – from which time the company manufactured all types of equipment and machinery in stainless steel. As time went by, he found that R&D (research and development) in South Africa relating to the effects of water on stainless steel was lacking, and due to the political circumstances, this situation worsened as he realised that people were buying what was available, which was not necessarily best for the application." Beswick continues, "When the sanctions were lifted, Jack Beswick searched the world for the best products and in 1990 started importing the Aire-O₂ Triton Aerators (a product of Aeration Industries) from the United States of America (USA)."

Branching out

Beswick reveals that following the tremendous success of the Air-O₂ Triton Aerators, Circuit Engineering expanded through the formation of Circuit Environmental Engineering. This company was formed as a separate entity with the core focus on the water industry – supplying only the best equipment available worldwide to this market sector in South Africa.

The formation of Circuit Environmental meant that circuit engineering could cover almost all aspects of a wastewater facility. Beswick explains, "We supply the major equipment needs of any wastewater facility.

At the inlet of the works we supply screens from Meva – Nordic Water, a Swedish company. For anoxic and anaerobic digestion we supply mixers by Aire-O₂, for aerobic basins we supply Aire-O₂ Aerators, and at the end of the process we supply the dewatering equipment from EMO a French manufacturing company which also manufactures parts for Airbus."

Since 1990, when Circuit Engineering first started importing the Aire-O₂ Triton Aerators, the products have proven to be an extremely popular choice for application in wastewater treatment plants across Southern Africa. But what made Aire-O₂ Triton Aerators so popular?



An Aire-O₂ Triton aerator/mixer shown in a bridge mount at an oxidation oval site in Europe

Aeration Industries

Aeration Industries, based in Minneapolis, Minnesota, is the world's largest manufacturer of surface aeration equipment. The company supplies advanced wastewater treatment systems, aerators and mixers used in municipal and industrial wastewater treatment facilities; the restoration of lakes, rivers and harbours; and the aquaculture (fish farming industry).

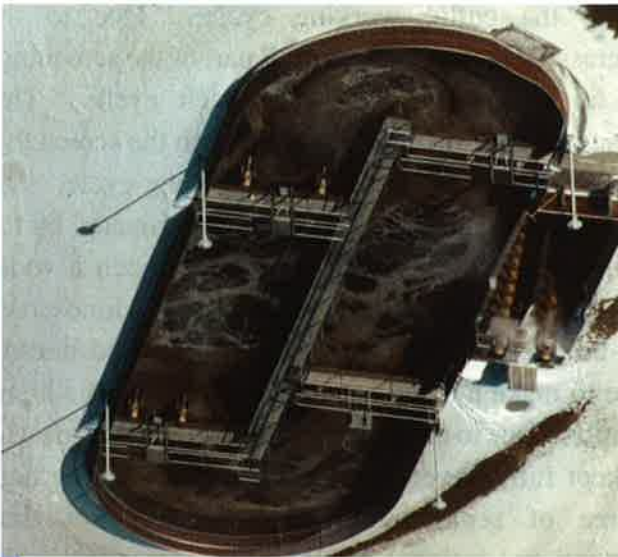
A reliable product

According to Beswick, "The Aire-O₂ Triton is a dual function, process Aerator/Mixer. This system optimises the combination of hydraulic and aeration efficiency required to achieve higher oxygen transfer, superior mixing, and allow unsurpassed control of the activated sludge process environment." He adds, "Biological nutrient removal processes are easily regulated and more cost effective by combining mixing and aeration in one compact unit with independent aeration control." Some aspects of Aire-O₂ Triton Aerators that have contributed to this product's success include the following:

- dual-functionality – precision-controlled aeration and mixing allows for biological nutrient removal
- fine bubble aeration – Environmental Protection Agency (EPA)-defined
- horizontal mixing – whole-basin circulation



A 45kw Aire-O₂ Triton Aerator that was installed at Sappi - Stanger Mill



An aerial view of the oxidation oval at Madison WWTP

- minimal maintenance – few parts that can wear down, no gear-box
 - total cost of ownership: up to a five-year warranty, low-speed extends aerator life, electrical savings
 - small footprint – deep mixing equals reduced land costs.
 - works below the surface and is therefore environmentally friendly.
- Beswick discussed additional characteristics of these aerators: “The Aire-O₂ Triton process aerator/mixer creates a high velocity, horizontal mixing flow pattern for maximum treatment efficiency. The Triton has very high mixing performance efficiencies due to an induced flow that is much greater than the pro-pumping rates, which can be calculated mathematically. Propeller manufacturers estimate that the induced flow rate may be 10 to 20 times that of calculated flow rate.” In addition, the Triton also offers exceptional mixing depths – mixing up to a depth of 9.14m. This also results in massive saving for the facility as the Triton utilises a much smaller footprint than would be required at the normal depths of 3 to 4m. The combination of these features

SOUTH AFRICAN PROJECTS

PROJECT: SAPPI

SAPPI’s Stanger Mill had an odour problem, resulting from its wastewater that hadn’t been treated for an extended period of time. The smell was noticeable from the town all the way to the tollgate on the N2, approximately 10km away. Aire-O₂ Triton Aerators were installed as part of the solution.

PROJECT: BRAKPAN DAM

In approximately 1994, Circuit Environmental Engineering installed 10 Aire-O₂ Aspirator aerators to assist in removing the stench at the dam. Not only was the smell removed by the Aerators, but the local fishermen were very happy as they were catching larger fish in abundance. At dawn on a quiet morning, one could actually see how these aerators had created a current around this large dam, thus ensuring mixing and not allowing stagnant areas to be created in the dam. Aire-O₂ Aerators are also the specified equipment in the wastewater treatment at all Coca-Cola plants worldwide.

BASIC FEATURES

- simple mechanical design
- on-board regenerative blower
- turn-down capability for energy savings
- unobstructed airflow with no air leakage
- heavy-duty low speed industrial motor, stainless steel housing/power drive
- routine maintenance requires only two field serviceable replacement parts
- portable, easy to install, move and service
- process control – capable of turning ‘on and off’ based on dissolved oxygen (DO), timer or manual operation
- subsurface aeration means good winter performance: no aerosols or icing, for a safer environment.

has seen the Aire-O₂ Triton Aerators become increasingly popular across the globe, including Southern Africa, thanks to the insight of Circuit Environmental Engineering who saw a reliable and excellent product that could be applied to WWTP in the region. **35**