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Creature Comforts - Courtesy of AquaKLEAR

Banham Zoo in Norfolk has solved a long-standing problem with the water quality in its South African Fur Seal pool by adopting the latest technology – ordinarily used in commercial swimming pools.

The 35-acre zoo attracts over 200,000 visitors per annum and a key attraction is the Fur Seal pool. It holds approximately 64,000 gallons of water, but due to the size of the Fur Seals (especially the two bulls who have grown considerably in size since they arrived as young animals 10 years ago) and the amount of fresh fish they eat daily, organic matter in the pool was notoriously difficult to control. The entire volume of the pool was filtered every 1.7 hours and the pool water totally replaced once a week. This was largely because the staffs were unable to add as much chlorine (sodium hypo chlorite) as they would like. The high doses that would be needed to cope with the levels of contamination would be a health hazard to the Fur Seals. Chlorine by-products can have an impact on sea lions – just as they can on humans, in terms of irritation to eyes and skin as well as causing respiratory problems. Algae growth was also a real problem – especially during summer – as enough chemicals could not be added to control the bloom.

The pool's sand filters were also requiring back-washing two or three times a week. This, combined with the staff time required to drain the pool and clean it, was becoming a real chore for the staff. The pool required three hours to drain, up to 5 hours to clean, normally with a power hose, and a further 15 hours to refill. A big problem however was the fact that the Fur Seals lost a day in the pool and it was also a disappointment for visitors who came on the 'change' day.

The Assistant Zoo Animal Manager, Mike Woolham, who has over 20 years experience working in zoos, consulted a pool consultant - Simon Thorogood of Eastern Pools. Mike had examined both Ozone and UV systems, but had been put off by concerns over health/safety and cost respectively. Simon had read reports in the press about a new technology called AquaKLEAR that was delivering great benefits to commercial pool in terms of water quality and cost savings. He put Mike in touch with the suppliers – HydroPath (UK).

AquaKLEAR is a patented physical water treatment systems that subjects water passing the unit to an electric charge which causes particles to flocculate; bacteria is attacked and fixed chlorine is broken down. The result is that free chlorine is free to kill bacteria and algae and there are fewer by-products of chlorine, such as chloramines and trihalomethanes – the subjects of increasing medical concern. Additionally, pools need to be backwashed less as the larger particles sit on the top of the sand bed, rather than filtering down into the sand; this saves on energy, chemicals and staff time.

In April 2003, Mike agreed to trial the unit for three months. This was a low risk option as the AquaKLEAR system is simply attached to a relevant section of pipe work in the plant room – with no pipes needing to be cut.

Within weeks Mike and his team noticed a big impact. Previously the staff had only been able to switch on the automatic chemical dosing system for a maximum of 1.5 hours, for fear of too much chlorine being added to the water. Now the automatic unit is kept switched on constantly; water quality has improved and much less chlorine needs to be added as free chlorine is available in the water. Free chlorine levels are now 0.2 to 0.5 parts per million, whereas previously there were no readings at all - any free chlorine that was added was almost instantly converted to fixed chlorine because of the high levels of contamination.

Associated chloramines levels have also dropped as a consequence. The pH levels are now consistently around 7.5, whereas previously levels were erratic as staff and the dosing equipment tried to equalize levels after the addition of sodium hypochlorite.

Mike sums up by commenting “We now only need to backwash the pool once a week and have only needed to drain the pool once every three weeks over the summer and far less during the winter months. This has left myself and the staff with more time to do what we like best – using the time to provide even better care for our animals. Suffice to say, I was very happy to keep the AquaKLEAR unit in use after the evaluation period. The cost benefits have been considerable – not to mention the positive effects for the Fur Seals.”