

AquaKLEAR water treatment system - Case Study

Client: Haltemprice Leisure Centre near Beverley

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Background

East Riding of Yorkshire Council is building a new pool at Beverley in the near future and it was felt that the new pool should have the best water treatment system available. Since the changeover from a chlorine gas water treatment system in the early eighties, little attention has been paid to the quality of water treatment. However, there have been growing concerns from the medical and pool professionals in relation to Cryptosporidium, Pseudomonas and Trihalomethanes. The latter has received significant press in the last few months concerning potential harmful effects on bathers and staff.

The introduction of Best Value and the consequential issues in relation to pool water quality, in the main, have not been considered. However, there is a distinct possibility that European Standards relating to pool water could be imposed upon pool operators. The standards of pool water in other European countries are significantly higher than that of the UK, particularly the DIN standard.

Following an introduction to the AquaKLEAR system at a Sportsvine meeting, Colin Wilson, Assistant Leisure Unit Manager for the Council investigated the merits of a trial.

The Test

Although it was not possible to test the AquaKLEAR unit in isolation, Colin decided to select two specific elements to evaluate the product claims. The first were total Trihalomethane levels (THMs). These were chosen as the main subject of the test as these are difficult to deal with through conventional water treatment methods. The second element to be monitored was specifically the level of Chloroform within that overall total.

The first water sample was taken on the 28th March 2002, prior to the installation of a AquaKLEAR unit on the 2nd of April. Subsequent comparative tests were carried out on 13th June and 19th September 2002. All tests were independently carried out by a Public Analyst from Cassella GMSS Ltd.

Results

	Chloroform (μl)	Total THMs (μl)
28/3/02	320	338
13/6/02	140	163
19/9/02	<5	30

British Standard 100 μ l - DIN Standard 20 μ l

As can be seen from the results, there was a significant reduction in the total THMs. Also of significance is the reduction in the Chloroform levels, which are believed to be related to incidences of cancer.

Water Dilution

As per Leisure Water Solutions' recommendations, the pool was backwashed less than normal during the test period - once every 3 weeks, as opposed to once a week. There have apparently been concerns over the reduced backwashing recommendations from some quarters. Current recommendations suggest that 30/l per bather per day be replaced. This is necessary to remove the high levels of by-products from both chemicals and naturally occurring bodily substances and other foreign matter.

An appropriate AquaKLEAR unit is fitted to the circulating pipework and water is subjected to a charge as it passes through. This causes flocculation of suspended particles and breaks down fixed chlorine, releasing free chlorine. This means that particles do not descend as deeply into the sand filter and therefore there is an associated reduction in backpressure. Additionally, lower amounts of chlorine and other chemicals need to be added to the pool water.

Other findings and their implications

- By reducing the need for backwashing - to approximately 1/3rd of the present level - there are savings in water, energy and staff time.
- The clarity of the pool water has improved significantly.
- The system does treat algae (although this was not a problem at Haltemprice).
- There is a possibility that AquaKLEAR deals with Cryptosporidium and Pseudomonas. The latter is the cause of problems on a pool inflatable at Driffield Sports Centre. The recent case has highlighted the fact that Pseudomonas is prevalent in pools throughout the country although not to the same virile strain.
- The AquaKLEAR unit is simple to install with no cutting of pipes required. It also requires minimal maintenance, with only occasional monitoring from AquaKLEAR engineers.

Conclusion

The results of the Haltemprice trial have been very encouraging and a report has been forwarded to the ISRM and PWTAG for their consideration.

The patented system is relatively simple in terms of its operation, yet its benefits are numerous - financially and medically. Evidence suggests that an average 25m pool will save between £5,000 to £10,000 pa and pool user feedback is highly complimentary.

There may be suspicion, by some, of the technology, because of its simplicity and not being chemical based. However empirical evidence, like that gained at Haltemprice, will hopefully prove the product's efficiency and merits.