

Application Note 301



ALGAE CONTROL FOR THE WA POLICE ACADEMY

Location

Joondalup, Perth, Western Australia.

Objectives / scope

To substantially reduce the recurrent summer 'algal' problem in the Memorial Lake at the Police Academy, Joondalup campus.

Solution Provided

Achieved the objectives above by carrying out extended trials using the commercial ultrasonic algae controller, observe the results. Supplied and installed the commercial Algae Controllers as appropriate. Full details of the solutions are given in the literature below.

Customer Benefits

Because of its central location inside the academy grounds, the appearance of the man-made lake is of prime importance to the Police Academy

To the absolute satisfaction of the Police Academy, Waterman Irrigation provided a total and permanent solution to reduce the Algae substantially delivering a good looking lake and pleasant environment without Algae

Chronology

- The lake was brown in colour without detectable cyanobacterial odour at the time of sampling. The lake bed was covered with a significant layer of flocculated pale brown surface material
- Police Academy collected samples of the Algae and the water from the lake for analysis on 9th of October 2003
- Analysis proved that the total microalgal density was high at ca. 43,864 cells per mL and is considered to be significant and accounts for the observed brown colour of the water.
- Waterman Irrigation installed trial commercial ultrasonic Algae controllers in the lake
- After 50 days of turning on the Algae controller units, on 10 day intervals, samples were taken and analysed and it was observed that the microalgal density was substantially lowering down and water looked clearer.



Client Needs

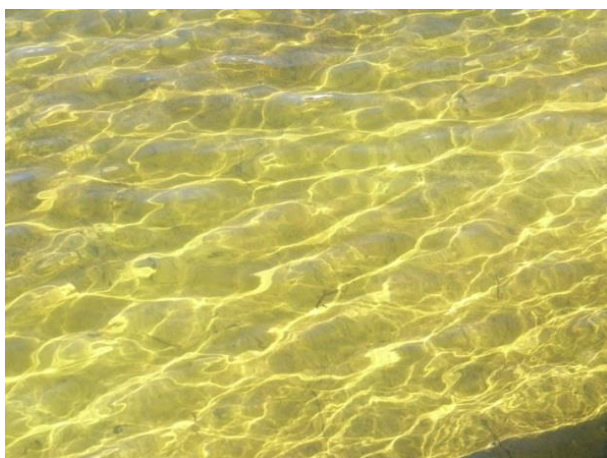
- Based on the good results achieved by the above trials for extended period of time, Waterman Irrigation was approached by the Police Academy to provide a permanent installation of Ultrasonic Algae controllers to clear the Algae problem in the lake

Achievements

- Waterman Irrigation supplied and installed an adequate number of Smartpark Algae Controllers to cover the entire lake area in the Aluminium enclosures.
- The Algae Controllers installed work by transmitting highly targeted ultrasonic sound waves below the water surface that ruptures the tonoplast (thin membrane) of the Algae cell resulting in regulating the Osmotic (water) Pressure, disposing wastes and toxins prevent growth of algae by cutting the nutrients to the algae cell
- Scientific tests performed on site by the West Australian Department of Environment have provided a clear indication of the effectiveness of the Smartpark Algae Controller.
- The full reports of the analysis carried out on the samples from the lake provided with the approval of the Building Management Authority of Western Australia can be provided upon request.
- The results of this test, that showed a remarkable 98% reduction in algae concentration, is shown in the tables below

Algal Group	Dominant Genera	Density Cells per ml	Algal Group	Dominant Genera	Density Cells per ml
Diatoms	Tabularia	41,915	Diatoms	cf. Encyonema, Navicula, Synerdra/Fragilaria	898
Dinoflagellates	Gymnodinium, Peridinium	333	Dinoflagellates	Peridinium	61
Chlorophytes	Monoraphidium, Scenedesmus, Chlamydomonas	1,616	Chlorophytes	Monoraphidium, Scenedesmus, Chlamydomonas	83
Cryptophytes	Cryptomonas, Chroomonas		Cryptophytes	Cryptomonas, Chroomonas	335
Euglenophytes	Trachelomonas		Euglenophytes	Trachelomonas	4
Cyanobacteria	cf. Oscillatoria		Cyanobacteria	cf. Oscillatoria	346
Total		43,864	Total		1,727
Results of Sample Taken on 21st October			Results of Sample Taken on 2nd December		

As can be seen from the above tables there has been a substantial reduction in the amount of algae in the water. The predominant Tabularia alga had all but disappeared in the second test. The result can be seen below in a picture of the water clarity.



Water Clarity



Algae controllers unobtrusively installed below the foot bridge