



WATER QUALITY, CLARITY, AND ODOUR IMPROVEMENT IN A GOLF COURSE POND USING NANOBUBBLE TECHNOLOGY

The A major golf course in Sydney, Australia experienced ongoing water quality challenges within its ornamental pond system. The facility contains three ponds that contribute significantly to the landscape and overall visual appeal of the site. While water features may not be as critical to golfers as the turf itself, poorly maintained ponds can create negative impressions and pose potential health risks to both humans and wildlife. The main 30 megalitre pond receives stormwater runoff from surrounding residential streets and nearby urban areas. Like many stormwater-fed water bodies, the pond was affected by nutrient-laden runoff despite the presence of Gross Pollutant Traps (GPTs). This resulted in foul odours, grey murky water, elevated bacteria levels, and excessive algal growth likely associated with contaminated inflows and nutrient accumulation. Maintaining attractive water features is essential for recreational facilities, as poorly maintained ponds and lakes can reduce visual appeal, customer satisfaction, and the overall quality of the facility.

Unit Type: 10-Cell Injector
NB Installation: 06 June 2024
Pond Size: 30 million litre
Benefits: Successful reduction in Odour, Green algae disappeared, Improvement in water quality and clarity, Decrease in Iron by 51%, Decrease in Ammonia by 80%, Decrease in Phosphate by 83%, Reduce faecal coliforms and E. coli to <20 cfu/100 ml



10-Cell Nanobubble Injector System

Through the partnership with nanobubble technologies, Golf Club decided to conduct a trial using a nanobubble machine designed by nanobubble technologies to eliminate pond problems. In August 2024, a team of researchers from the University of New South Wales in Sydney, Australia demonstrated remarkable findings that our nanobubble machine can create 1130 million bubbles per millilitre with an average size of 75 nanometres.

The installation of a 10-cell nanobubble injector system in the pond was completed on 06 June 2024. Water analysis revealed the following water quality level at the start of the trial: Iron 310 µg/l, Ammonia 0.051 mg/l, Phosphate 0.12 mg/L (all out of range), faecal coliforms: >100 cfu/100 ml; E. coli: >100 cfu/100 ml (moderate). After 3 and half months of operation, we observed the following results: (1) the odour problems were resolved, (2) the green algae disappeared, (3) the visibility in the water was 4 m, and (4) native wildlife returned to the site. Meanwhile, the water analysis showed the excellent following water quality level at the end of the trial: Iron 150 µg/l, Ammonia 0.01 mg/l, Phosphate 0.02 mg/L (all in range), faecal coliforms:<20cfu/100ml; E.coli:<20 cfu/100ml (low). Overall, all water quality parameters showed a significant improvement at the end of the trial. The improvement is remarkable taking into consideration that no chemicals were used. In addition to being environmentally friendly, nanobubble technology can eliminate the risks associated with chemical exposure.



Golf Club's Pond Using Nanobubble Technologies' Injector

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