



Major components of the Pennant Hills sewer mining plant, such as the balance tank, are in place and the final piece of the puzzle – the sewer offtake connection – was due to be completed by the end of February



# Final hurdle in sight for Pennant Hills plant

Pennant Hills Golf Club in Sydney is hoping to flick the switch on its new multi-million dollar sewer mining plant this month (March). Dogged by weather-related delays, the Water Reclamation Plant (WRP) is nearly two months behind schedule, however the final stage of the project – the offtake from the sewer main located in Devlin's Creek – was expected to be completed in late February.

Constructing the offtake has been hampered due to high flow levels through the creek caused by months of wet weather. Ironically, 2007 was the club's wettest since 1994, which has meant it has been near impossible to get the offtake process underway as it requires minimal flows through the water body.

Building of the plant and its various components has continued unhindered, however, and all tanks and chambers have been constructed and thoroughly waterproof tested over January. The electrical switchboard has also undergone extensive testing and the PLC has been programmed ready to start producing water.

**Despite delays in the construction of its groundbreaking sewer mining plant, Pennant Hills Golf Club is just a few small steps away from ending its reliance on potable water for irrigation.**

At the time of this edition going to print, Pennant Hills general manager Stewart Fenton was waiting on final approval of the Systems Management Plan (SMP) from Hornsby Council, which was expected to get the all clear in late February. Such approval allows for formal water testing to begin, subject to the sewer offtake connection being completed.

The SMP, a document which was completed totally in-house and extends to 85 pages, was part of a number of additional bureaucratic hurdles the club has had to clear

following the release of the Interim Guidelines for Management of Private Recycled Water Schemes late in 2007. As well as the SMP, an extensive risk assessment report was conducted and lodged with the council.

While the weather delays have been frustrating, Fenton says that the club had one bit of good news in that it has, as part of its SMP, been able to negotiate the formal testing period down from three months to one month. That should mean the club will be able to produce and use water on the course in late March, provided the weather comes to the party.

"The installation of the membranes will occur immediately after the sewer offtake connection is completed," explains Fenton. "We have also negotiated with Sydney Water to obtain a large quantity of 'seed' material (the bugs which eat the sludge) from one of their local sewage treatment plants. This will save time as we will not have to cultivate our own 'seed' which is so pivotal to the membrane biological reactor process."

Elsewhere on site, work on permanent

BY BRETT ROBINSON AND STEWART FENTON

fencing around the plant was due to start in late February. Groundstaff have also incorporated some mounding down the right hand side of the 10th hole which will further add to the visual aspect of the plant which has been built into the natural contours of the area.

Two new bunkers have also been constructed on the right hand side of the 10th hole, under the direction of course architect Jim Wilcher. The bunkers have been designed to push play away from the plant but have been specifically placed to come into play for the long hitters only. They are also reasonably shallow to allow for a good shot to be played to the green.

Operation of the WRP will be undertaken in-house by course superintendent Richard Kirkby and his crew. The plant is fully automated with the high end technology allowing for water specifications to be "dialled in". This enables key components of the water, such as pH and nitrogen levels, to be continually adjusted.

It also allows a variety of operational speeds which means the club can reduce the amount of water produced during non-peak times, like



Pennant Hills Golf Club general manager Stewart Fenton

winter. However, as the plant is a bioreactor and relies on 'bugs' to feed on the sludge, it will need to run all year round to keep them alive. It is anticipated that the plant will run at 15 per cent of its capacity during winter.

The project has generated widespread interest across the golf course industry and Fenton says one of his more onerous tasks

will be whittling down the guest list for the official opening, with government ministers and officials lining up to be there. Fenton has also been called upon by other golfing associations to outline the project and in late February he presented to a gathering of Victorian golf course general managers.

"As each day passes we are one step closer to turning the dream into reality," says Fenton. "While most courses in Sydney are looking nice and green at the present time due to all the rain we've been having, we will be able to ensure ours is like this for the years to come without any reliance on weather or potable water supplies.

"This is all happening at a time when Sydney Water is currently awaiting a decision from IPART in regard to a price increase from \$1.38 per kilolitre of drinking water to \$2.08.

"There is no doubt that the price of water will continue to increase and golf clubs that do rely on potable water supplies will face significant additional financial pressures if they do not address the water challenge facing the industry." 🌊