

## **INNOVATION IN EFFLUENT RE-USE**

Wide Bay Water Corporation (WBWC) has come up with a winning solution for the dispersal of their wastewater by recycling it onto a timber plantation. Currently 300,000 trees have been planted (approximately 220 hectares) with expansion to one million trees by 2010. A centrally controlled automated drip irrigation system using Class B effluent water from Hervey Bay's two sewage treatment plants irrigates the timber plantations.

Hervey Bay is one of the top ten fastest growing areas in Australia and in the past 40 years has almost doubled every decade in population to its current size of 56,000. As with a lot of local councils in Australia the Environmental Protection Agency (EPA) is toughening its stance on effluent discharge direct to creeks and rivers especially close to the ocean. Hervey Bay was facing the same dilemma and the option was to increase the level of treatment to discharge or reuse. The land based reuse option was chosen with the challenge to meet EPA regulations, locate suitable area, deal with huge population growth and an outcome acceptable to the community.

Once areas were designated the reuse options were determined via a number of trials including sugar cane, pasture, eucalypt plantation and tea trees. These trials showed the impact of reuse water on the soils and environment and what are the yield implications. The effluent is reused on private turf farms, private cane farms, timber plantations, airport irrigation system, golf course and local industrial estate for irrigation purposes. The trees which have been planted include grey gum, grey box, forest red gum, grey ironbark, Gympie messmate and spotted gum.

Netafim has been involved in all stages of the tree development spanning over 10 years. Initial work was done in the trials to determine dripper flow rates and spacings, run lengths, dripper types and filtration requirements. The latest project in late 2006 was on the new farm called Bunya and an expansion on Pulgul totalling 220 hectares.

Along with dripperline selection, filtration was also critical to the project as Class B effluent was used for the drip irrigation. An Arkal Galaxy 12 (130 micron) automatic disc filtration system was chosen on Bunya Farm designed for a 380m<sup>3</sup>/hr flow rate.

Careful consideration was also given to choosing the type of Automation system. Some of the challenges were that the temporary site office had no mains power, the system had to be flexible enough to cope with future expansion, not only in the number of control valves and sensors, but geographically and topographically. It had to be simple enough to operate on a day to day basis for the system operators, yet include all the powerful logging, alarm reporting, accumulation and management tools required by upper management. The field units had to operate in full capacity in the unlikely event that the central communication system was interrupted.

The Netafim Irrinet Central Control system was chosen & installed along with a Netafim Irriwise wireless monitoring system was also installed at the Bunya site to record local environmental factors, such as a weather station to monitor temperature, humidity, solar radiation, wind speed, rainfall and ET.

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