Municipal Wastewater

PROJECT OVERVIEW
This essential infrastructure project upgrade worth $380M for the Eastern Treatment Plant (ETP) which included an Advanced Tertiary Treatment Plant (ATTP) based on Ozone and Biological Media Filtration treatment, coupled with ultraviolet disinfection. The plant, built in 1975, has been transformed into one of the most sophisticated facilities of its kind in the world.

Advances in technology mean that forty percent of Melbourne’s sewage which goes to the plant is treated to a much higher standard than possible in the past. This has enormous benefits for the marine environment at Boags Rocks, near Gunnamatta Beach where the treated water is discharged.

The project included the design, construction and commissioning of the ATTP. In March 2010 Melbourne Water entered into an alliance agreement with four private sector partners which formed the Eastern Tertiary Alliance. The organisations were UGL, Melbourne Water, Baulderstone, Black & Veatch and KBR.

THE CHALLENGE
The Eastern Treatment Plant previously supplied about 22 billion litres of ‘Class C’ recycled water per year. Melbourne Water required an upgrade that improved the quality of recycled water to ‘Class A’, which could then be used for wider applications such as watering sports grounds, toilet flushing and irrigating vegetables.

The Project objectives were to:
• Upgrade the ETP to include advanced tertiary treatment that significantly improves the quality of water discharged, thus addressing the impacts in the marine environment
• Enable the production of a high quality recycled water product that is fit for purpose
• Achieve completion and commissioning by 30 November 2012 if possible but no later than 15 February 2013

THE SOLUTION
UGL and its alliance partners were responsible for building seven new structures over approximately six hectares of land within the existing Eastern Treatment Plant boundary. The new components include a tertiary supply pump station, ozone injection and ozone production buildings, high voltage electrical substations, power cabling, biological media filters, instrumentation and control systems, UV system, two large chlorine contact basins, operations and maintenance during the asset proving period.
In this alliance, UGL provided a range of services including:

- Alliance management
- Financial and administrative management
- Management of establishment target costs
- Process design reviews as well as detail design and detail design review
- Procurement services
- Contract administration
- Quality Assurance and control services
- Safety management
- Construction management and supervision
- Commissioning
- Process control

**KEY OUTCOMES AND BENEFITS**

UGL’s step-by-step collaborative approach to the project provided the Alliance with certainty in achieving the necessary outcomes. This approach also ensured that the challenge of working with multiple stakeholders was successfully managed to deliver an optimal outcome.

Key successes included:

- The client’s expectations throughout the project were met through positive and thorough technical reviews and design risk workshops
- The construction phase of the project progressed ahead of schedule due largely to the detailed planning that took place during the design phase
- Sustainability initiatives were successfully introduced including significant improvements to the marine environment at Boags Rocks, Gunnamatta Beach and the use of recycled water