

## Castlemaine Water Reclamation Plant Upgrade



*Above: New cover to Anaerobic Tank, April 2011.*

The Castlemaine Water Reclamation Plant (CWRP) upgrade project is now complete. Announced in March 2010, this upgrade will improve operational efficiency and reduce the volume of odour generated at the plant, which had been an intermittent problem for a number of years.

The plant was originally commissioned in 1999, and currently treats wastewater from the townships of Castlemaine, Maldon and Newstead. The age of the equipment, together with population growth in the area, meant improvements were needed to ensure efficient plant operations into the future.

Originally announced as a \$5.2M project, final costs have been closer to \$6.9M. This is a result of further investigations once works had commenced that identified additional works required and delays in progress due to heavy rain events late last year and early this year.

### What was involved in the upgrade works?

Essentially the upgrade works included covering the portions of the plant which generate odours, and the installation of odour filtration/absorption facilities.

All mechanical, electrical and structural installation have been completed. This included:

- New inlet works with screens and grit removal systems  
This will remove large particles and debris from incoming flows, which improves the efficiency of the treatment process.
- Anaerobic Tank cover  
This tank is the first step of the treatment process. Within this tank, wastewater has no dissolved oxygen. This environment allows certain type of bacteria to grow and helps to naturally treat the sewage. It is part of the biological nutrient removal process of the plant. By covering the tank, it will contain the odours generated through this treatment process which is absorbed in the biofilter.
- New biofilter installed  
This filter will absorb odours from the most odourous parts of the treatment process.
- New aeration system installed in the process steps will improve efficiency in the final stages of tank treatment.
- Installation of chemical delivery bunds  
These areas have been designed to contain any accidental chemical spills that may occur during delivery and therefore removing the possibility of spilled chemicals entering the environment.
- Electrical upgrades to existing cabinets and onsite electrical mains.
- Large scale plant maintenance – which included the removal of over ten megalitres of liquid and accumulated residual grit in the anaerobic tank, replacement of aeration membranes and maintenance to submerged steel structures within the tanks.

Throughout the course of the upgrade works, there was no interruption to customer wastewater services.

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*Above: sludge cleaning of Intermittent Aeration Tank, March 2011.*



*Above: Biofilter installation, May 2011.*



*Above: Recommissioning of Demand Aeration Tank, April 2011.*

### Why was odour an issue at the plant?

Odours are generated from organic material in the sewage that breaks down causing gases to be released, some of which smell. Previously at the CWRP, all wastewater entered the first anaerobic tank, where the majority of organic material breaks down in an open top tank, as part of the treatment process. This means that all gases generated were expelled directly into the atmosphere to dissipate.

As part of the upgrade works, a cover has now been installed over the anaerobic tank, capturing any odour that may generate.

### Project delays

We experienced lengthy delays in project progress due to continuous rain and large rainfall events late last year and early this year. Heavy rainfall caused large increases in flows into the plant and prevented access to works. When the project was announced, we anticipated the project to be completed late 2010 however timelines were extended with commissioning taking place last month.

### Campbells Creek water quality

Under our EPA licence conditions, we release treated wastewater from our plant to Campbells Creek.

Warning signs were erected along Campbells Creek as a precaution for any potential change in water quality within the Creek during the last phase of works. Whilst wastewater treatment was maintained throughout the upgrade, there was however potential for the quality of the treated wastewater released to the Creek to change.

We worked with the EPA to ensure we minimise any impacts to the Creek and the adjoining Loddon River. Additional water quality monitoring was carried out until the works were completed.

During the upgrade works, there were two occasions where the plants output deviated from our pre-existing licence conditions. However we had sufficient emergency storage capacity to ensure none of this wastewater was discharged to the creek. This was later treated through the plant.

With the completion of the project, warning signs along the creek will now be removed.

### Feedback

If you have any questions or feedback to provide, please contact us on 1300 363 200 or email [coliban@coliban.com.au](mailto:coliban@coliban.com.au)

More information on the CWRP Upgrade project can be found on our website – [www.coliban.com.au](http://www.coliban.com.au) and click on the link to *Major Projects*.