

Castlemaine Water Reclamation Plant Upgrade



Above: Crane erecting inlet structure at CWRP, October 2010.

A \$5.2 million upgrade to the Castlemaine Water Reclamation Plant (CWRP) was announced in March 2010 to improve performance efficiency and to reduce the volume of odour generated at the plant, as it has been an intermittent problem for a number of years.

Originally commissioned in 1999, the CWRP currently treats wastewater from the townships of Castlemaine, Maldon and Newstead.

Age of the equipment, together with population growth in the area, has meant improvements need to be made to the plant to ensure efficient operations into the future.

Project delays

We have 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. Timelines have been extended, with commissioning to commence by the end of April 2011.

Why is odour an issue at the plant?

Odours are generated organic material in the sewage breaks down causing gases to be released, some of which smell. At the CWRP all wastewater enters 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 currently, all gases generated are expelled directly into the atmosphere to dissipate.

What is involved in the upgrade works?

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

The anaerobic tank will be drained and cleaned out. New mixers will be added to improve process efficiency and a cover will be installed to the tank to prevent odour escaping into the atmosphere.

New inlet works and bio filters will then be installed that will treat and absorb/remove any future odour generated. The aeration treatment process at the plant, which is used to break down the wastewater, will also be upgraded to improve the efficiency of this stage of the treatment process.

There is no interruption to customer wastewater services whilst these upgrade works are being undertaken.

What is an anaerobic tank?

The anaerobic 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.

Project progress

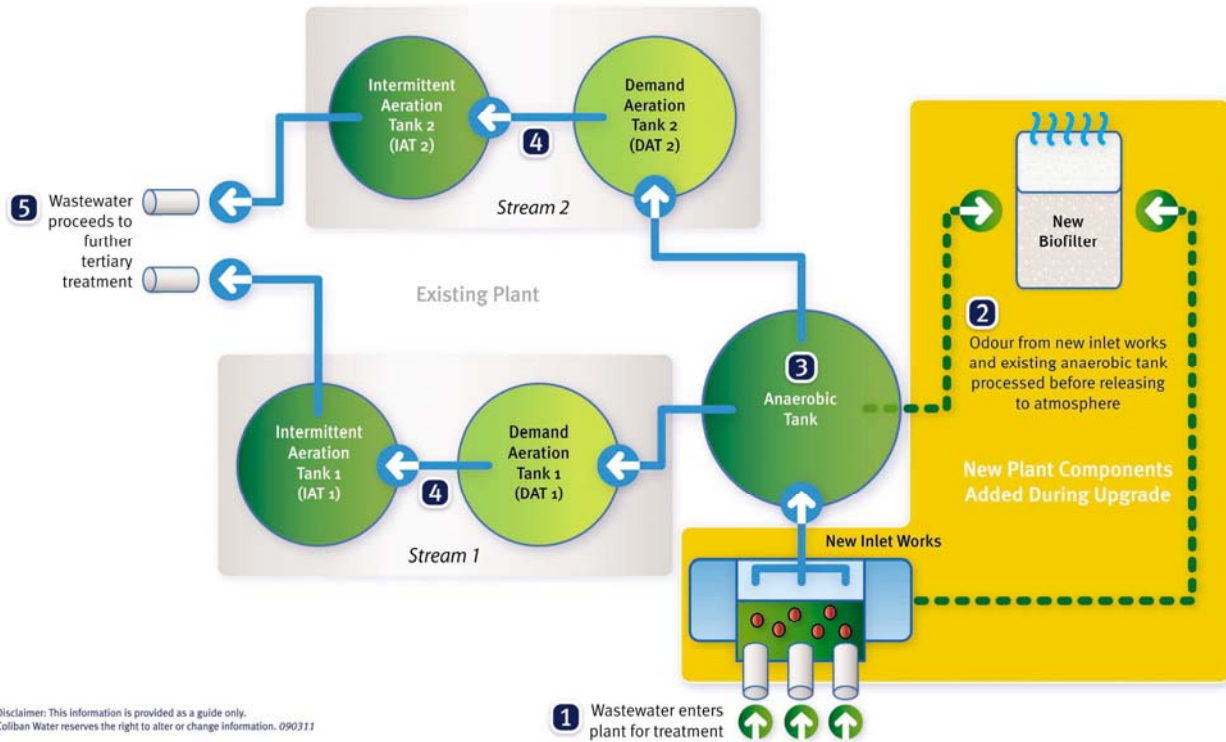
At the end of February we have completed:

- Construction of the new inlet
A site 'cut in' was completed on the night of January 18 to facilitate the inlet works. This involved cutting into the old pipes and redirecting flows to the new inlet works.
- Construction of the new chemical storage
- Anaerobic tank has been cleaned and emptied

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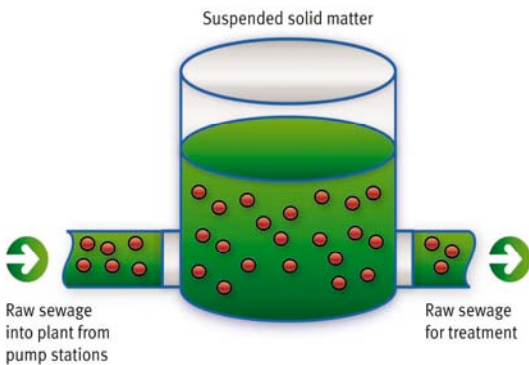
The diagram below outlines the operation of the plant.



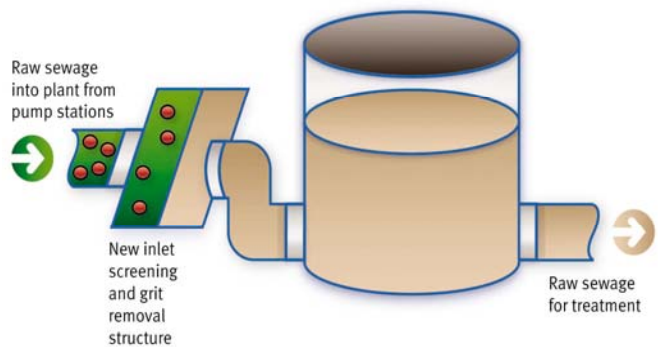
The following three diagrams detail the upgrade works being undertaken at the plant.

1. New Inlet Works – Screening and Grit Removal Improve the pre-filtration of raw sewage into the plant.

Process Before Upgrade



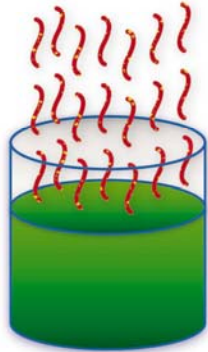
Process After Upgrade



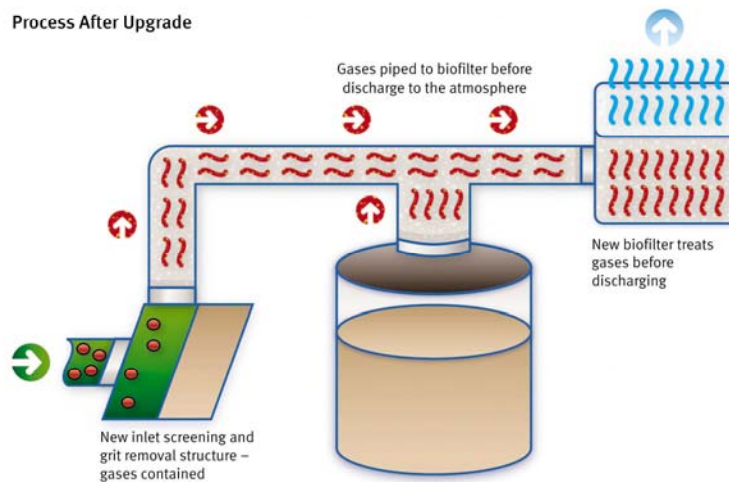
2. Biofilter and Odour Extraction System

Reduce the odour released to the atmosphere created by the treatment process.

Process Before Upgrade



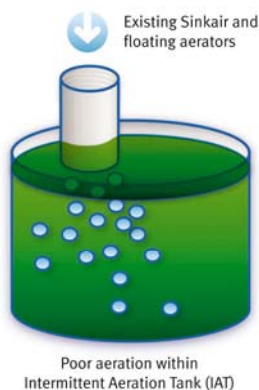
Process After Upgrade



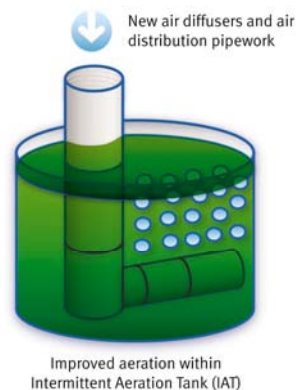
3. Upgrade of Aeration and Mixing Equipment at the Intermittent Aeration Tanks (IATs)

Improve the treatment process and quality of discharged treated water.

Process Before Upgrade



Process After Upgrade



Campbells Creek water quality

Warning signs have been erected along Campbells Creek as a precaution for a potential change in water quality within the Creek until the end of April this year. Under our EPA licence, we release treated wastewater from our plant to Campbells Creek.

Wastewater treatment is being maintained throughout the upgrade however the quality of the treated wastewater released to the Creek may change. We have been working with the EPA to ensure we minimise any impacts to the Creek and the adjoining Loddon River. Additional water quality monitoring is being conducted until the works are completed. This is only a temporary situation until the plant is fully operational again by the end of April this year.

Next stage

We have entered stage 2 of this project which will involve isolating one treatment stream (as illustrated on page 2) while we empty and clean two more additional tanks and upgrade their aeration systems. This process will then need to be repeated for the remaining two tanks (second stream) on site.

Feedback

If you have any questions or feedback to provide, please contact us on 1300 363 200 or email coliban@coliban.com.au. More information on the CWRP Upgrade project can be found on our website – www.coliban.com.au and click on the link to *Major Projects*.