

essentialfacts

Methane Covers

The Western Treatment Plant at Werribee processes more than half of Melbourne's sewage. It is one of the largest sewage treatment plants in the world, covering about 11,000 hectares (about the size of Phillip Island).

Sewage from Melbourne typically takes 60 to 70 days to be processed through the plant's lagoon systems. The plant processes more than 485 million litres of sewage a day.



Modern lagoons

The first large modern lagoon was installed at the Western Treatment Plant in 1986. Modern lagoons were introduced to increase the treatment capacity of the plant. The lagoons are made up of 10 vast ponds, each of which is 1.5 kilometres long and 200 metres wide. The modern lagoons are able to hold huge amounts of sewage. For example, the 55 East Lagoon has a capacity of 6200 million litres.

Methane covers

The first pond in each lagoon system includes membrane covers to eliminate odour and trap about 20,000 cubic metres of methane gas a day, as well as up to 50 aerators to pump in oxygen. Capturing this methane gas more than halves greenhouse gas emissions from the plant.

Melbourne Water has a contract with a power company, AGL Pty Ltd, to use the methane gas trapped under the lagoon covers to fire gas engines to generate electricity for the plant, saving the plant in electricity costs.

Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems throughout the Port Phillip and Westernport catchment.

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The power generation facilities are capable of producing 3.7 megawatts of electricity. With further alterations to the lagoons and gas recovery in coming years, this system will have the capability to produce up to twice the amount of electricity currently produced.



The first lagoon cover was installed in 1992 and additional covers were installed in 1999.

Each cover is made from high-density, 2.5mm thick polyethylene. Each cover takes up four hectares and consists of a foam layer in the middle of two outer plastic layers. The cover is anchored around the perimeter of the pond and held down by weighted pipes. The cover traps methane, which can be stored for up to eight hours, allowing the gas generators to draw on it when needed. This program reduces operating costs, and reduces greenhouse emissions

and eliminates odour. Similar covers are used in sewage treatment plants in parts of North America, but few are quite as large.

The gas generators operate up to 24 hours a day, with each lagoon producing enough electricity to supply a small suburb. The covers collect around 40,000 cubic metres of gas each day. The composition of the cover is:

Methane	80%
Carbon Dioxide	10%
Nitrogen	5%
Hydrogen Sulphide	0.5%
Water	4.5%

Further information

If you would like further information on any other aspect of Melbourne Water's role in managing our water resources, please contact us on 131 722 or visit Melbourne Water's website at melbournewater.com.au

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