

TRADE WASTE TREATMENT IN MUNICIPAL SLUDGE DIGESTERS

Natural gas costs, electricity costs and landfill gate fees in New Zealand increase continuously affecting the industrial sector and waste treatment service providers. CPG assisted therefore the Palmerston North City Council (PNCC) to upgrade its municipal sludge digesters to 4 fold improved biogas production capacity through co-digestion of industrial trade waste with the municipal digester sludge. The purpose was to extend the landfill life and produce additional renewable electricity with export of surplus power to the grid. The existing digesters were upgraded with a novel mixing system and recuperative sludge thickening without construction of new digester tanks. The digester mixing system upgrade design and construction was completed in 2012. The digesters have now 400 % of their original design biogas production capacity with the option to accept additional industrial and trade waste such as cheese whey, grease trap waste and dairy wastewater flotation foams. The municipal digester capacity upgrade to co-digestion of selected trade waste was achievable with an attractive payback period (< 2 years).

We present the technical design rationale to upgrade digesters without interruption of the WWTP operation. The results from the digester operation for co-digestion of primary sludge and dairy factory DAF sludge are shown as examples. CPG estimates that co-digestion of high strength organic trade waste and industrial and primary processing industry byproducts in municipal plants increases the national biogas production capacity from 0.45 PJ biogas/annum to approximately 1.9 PJ biogas/annum and renders the WWTP operation energy self sufficient.

Please enter all author names in the table below. Please mark the presenting author in **BOLD**

| Author Title | Author Name | Author Organisation & City |
|--------------|------------------------|-------------------------------------|
| Dr | Jurgen H Thiele | CPG New Zealand Ltd, Dunedin |
| | | |
| | | |
| | | |
| | | |

Please select which one of the following categories most closely matches the topic of your abstract.

| Select Category | Mark with an X |
|---|--------------------------|
| The water industry, latest trends and developments. | |
| Large Wastewater Treatment systems | |
| Innovative processes for treating Liquid industrial waste | X |
| Latest Research on wastewater treatment | |
| Optimisation of existing wastewater treatment processes. | |
| Compliance issues. How do I comply? How do I get them to comply? | |
| Regulatory requirements. | |
| Cultural considerations when designing and operating waste water treatment systems. | |
| Latest instrumentation technology. | |
| Small trade waste treatment systems. | |
| Understanding laboratory analysis. | |
| Training | |
| Sampling and Testing. | |
| Kiwi Ingenuity in the wastewater industry. | |