12 May 2025

SUCCESSFUL COMPLETION OF METHANE CONTROL PROGRAM

Emerging mineral processing technology company, Zeotech Limited (ASX: ZEO, "Zeotech" or "the Company"), is pleased to advise it has successfully concluded the Methane Control Program ("Program") at Griffith University ("Griffith"), which is being undertaken in collaboration with Cleanaway Waste Management Limited ("Cleanaway").

The Program has been underway at Griffith since February 2023 and has achieved its objective of developing an effective zeolite-based biofilter that adsorbs and eliminates methane emissions through chemical and biological oxidation.

HIGHLIGHTS

- The strongest performing zeoteCH_4® biofilter tested under simulated landfill configurations consistently decreased methane emissions by more than 90% relative to the controls.
- The zeoteCH_4® biofilters were stable throughout the trials, requiring minimal maintenance, and showed no signs of decreased performance at the end of the trials.
- The Company's zeoteCH_4® products substantially outperformed the third configuration containing only methanotroph inoculum, which did not display any reduction in methane emissions relative to the control.
- The long-term datasets have enhanced the Company's knowledge of zeoteCH_4® biofilter development and maintenance, and the ideal conditions for maximum oxidation rates.
- The positive results achieved will support engagement with operating landfill sites, aimed at progressing technology deployment to an on-site landfill trial.
- The Company has recently scaled the production capacity of its manufactured zeolite pilot plant to expand zeoteCH_4® inventory and support potential on-site landfill trials.

Griffith University, School of Environment and Science, Australian Rivers Institute, Dr Chris Pratt commented:

"We are extremely pleased with the achievements of the methane control program over the past 24 months, culminating in recording over 90% median methane elimination from the leading zeolite biofilter. This is extremely promising considering the in-field simulations were subjected to extreme weather events during the trial period. The infield pilot-scale configurations were constructed with similar engineered layers, cover soil, and methane emission rates as those seen in intermediate-sized landfills, so we are confident that we can replicate these results in operational landfills.

We look forward to working closely with Zeotech to share these exciting results with landfill operators to potentially secure an opportunity to progress to on-site trials later this year."

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Zeotech, Head of Projects, Dr. John Vogrin commented:

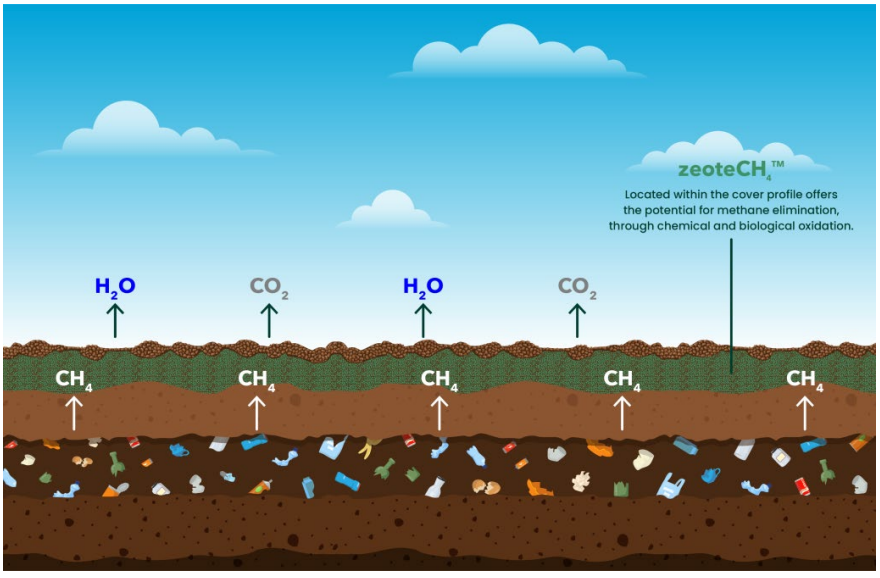
"We are pleased to complete the infield validation phase of our Program with Griffith University. This is the result of two years of research and development, and an entire year of optimisation and monitoring. The high oxidation rates, minimal maintenance, and robustness of the biofilters indicate that we have developed a promising, cost-effective solution to mitigate landfill methane emissions, a notoriously difficult greenhouse gas to eliminate, and one of Australia's most significant methane emission sources.

Zeotech would like to thank Dr. Chris Pratt and his team at Griffith University for their focus and dedication to the Program, which has delivered these outstanding results.

We also thank Cleanaway for their involvement and look forward to discussing the potential opportunity for on-site trial deployment."

Background

The Program commenced at Griffith in February 2023 and aimed to develop zeolite-based technology (biofilter) to be deployed within the surface capping soil of landfills to adsorb and eliminate methane emissions through chemical and/or biological oxidation and potentially mitigate a greenhouse gas with 28 times the global warming potential of carbon dioxide.[1]



Conceptual model for Zeotech product application to landfills

The Program spanned four key activities:

- Activity A - zeoteCH$_4$® materials characterization and sorption potential;
- Activity B - Methanotroph loading and biotechnology development;
- Activity C - Configuration development; and
- Activity D - Field testing using simulated landfill configurations.

[1] IPCC. Climate Change (2014): Synthesis Report, IPCC, Geneva, Switzerland

In Activity A, six of the Company's zeolite-based products were screened for methane adsorption capacity, pH, and surface area. Three progressed to Activity B, where methanotroph loading and their interaction with the zeolites were measured.

Activity C involved engineering lab-scale configurations, which were developed using Activity B's two best-performing zeoteCH_4® products.

As part of Activity D, three pilot-scale simulated configurations containing landfill cover soils provided by Cleanaway were commissioned in May 2024.

(above) simulated landfill configurations located at Griffith University

Two configurations contained the Company's zeoteCH_4® products, which showed constant high oxidation rates in Activities A & B. The zeolite-based products are manufactured from the Company's Toondoon kaolin mineral and a coal combustion by-product from a southeast Queensland generator, utilising proprietary processing technology developed in-house by the Company.

The third configuration contained methanotroph inoculum-only, providing a benchmark for the Company's zeolite materials.

To evaluate the performance of the Company's zeoteCH_4® products, regular measurement of methane emissions from the capping soil treated with the zeolite technology was compared with measurements from untreated capping soil (control) from the same configuration.

Cooler seasonal conditions had inhibited bio-methane generation in the early stages of Activity D, which delayed the acclimatisation of the methanogens (the source of methane gas).

Consistent bio-methane production was observed from September 2024. As a result of the encouraging methane oxidation rates[2], the Company extended the program for 3 months in December 2024, to collect additional data to support the Company's technology.

[2] ASX Announcement 10/12/24 - Methane Control Field Trials Deliver Promising Results

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Griffith University Field Trial Results

The field trial yielded promising results for the two zeoteCH$_4$® products. One of the zeoteCH$_4$® products was particularly effective. Apart from a short period of ineffectiveness for two weeks in November 2024 (attributed to severe rainfall experienced during the period), it consistently decreased methane emissions by more than 90% relative to the controls (i.e., cover soil only with no zeoteCH$_4$®).

The inoculum-only treatment was ineffective in methane elimination and, on balance, appeared to enhance emissions. This may be attributed to an increased carbon input associated with the inoculum being transferred into the methanogen layer, where it could be converted into methane. More likely, though, there were no actual differences in methane emissions from the treatment and control sections of this filter, and the results reflect spatial variation in methane production and transfer.

Patent Protection

The Program has unlocked significant new knowledge, and the Company has taken practical steps to protect the intellectual property generated by exploring the patentability of novel aspects of Zeotech's technology. In June 2024, it lodged a provisional patent application titled 'Zeolites for Methane Control' with the Australian Patent Office.

Further progress was made during the Program on potential novel aspects of the technology, which are being assessed for inclusion in the Patent Cooperation Treaty (PCT) specification, and is expected to be lodged during the quarter.

A key commercial advantage of the Company's zeoteCH$_4$® product is that it is manufactured utilising proprietary patent-pending zeolite synthesis processes developed in-house by the Company during 2023.

Looking ahead

The Company has recently expanded the in-house pilot plant capacity at its labs at Brisbane Technology Park to manufacture up to 100 kilograms of zeoteCH$_4$® material per week. This will enable larger quantities of zeoteCH$_4$® product to accommodate potential on-site landfill trials.

Metakaolin is the primary feedstock for zeoteCH$_4$® zeolite production, which aligns with the Company's focus on establishing commercial production of its AusPozz™ high-reactivity metakaolin product, which will support the accelerated commercialisation of zeolite opportunities.

Griffith University and Zeotech will present the Program's findings to several interested groups during the quarter. These presentations will aim to secure future on-site landfill trial opportunities.

This announcement has been approved by the Zeotech Board.

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About Zeotech

Zeotech Limited (ASX: ZEO) is a team of dedicated people working together to build a future-focused company, leveraging wholly-owned high-grade kaolin resources to produce high-reactivity metakaolin (HRM) for the low-carbon concrete market and advanced materials for greenhouse gas (GHG) mitigation, such as zeolites for fugitive methane control.

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Such statements are subject to certain risks and uncertainties, particularly those risks or uncertainties inherent in the process of developing technology and in the endeavour of building a business around such products and services.

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The forward-looking statements made in this announcement relate only to events as of the date on which the statements are made. Zeotech will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this announcement except as required by law or by any appropriate regulatory authority.

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