

DISPERSION MODELLING

Our company

Zephyr Environmental (Zephyr), is a boutique environmental consulting practice specialising in air quality and carbon management. We aim to form enduring and trust-based relationships with our clients to help them solve their most challenging environmental problems.

Our decentralised and agile structure enables us to handle the most complex assignments while remaining small enough to prioritise excellence in delivery while minimising business disruption for our clients. Our value lies in de-risking projects and providing trusted expert advice.

Our core value is 'We are a breath of fresh air, to our clients and our people.'
This is more than just a tagline; we strive to ensure that our clients have a significantly different, positive experience when working with us.

We strive to deliver practical, defensible advice that de-risks operations to ensure good environmental outcomes.

Services we provide:



Meteorological modelling



Air quality monitoring programs



Odour & dust management



Regional airshed management



Environmental & GHG audit / assurance



Air emissions management



Carbon mitigation & management



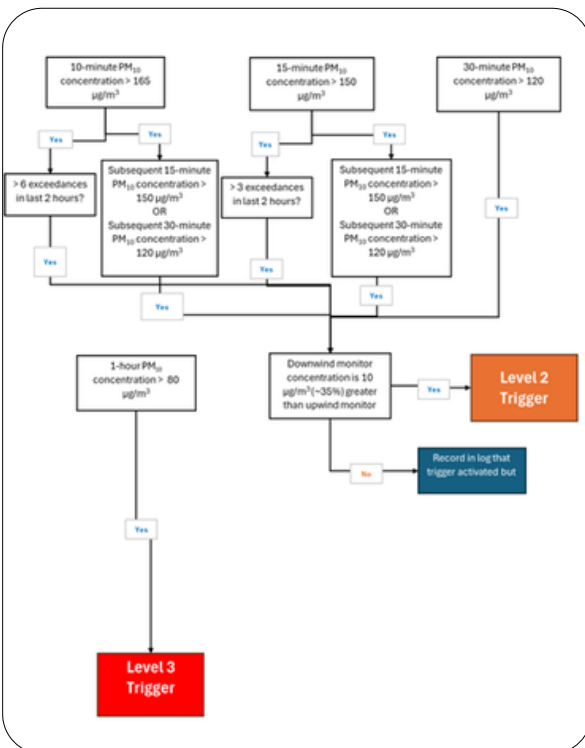
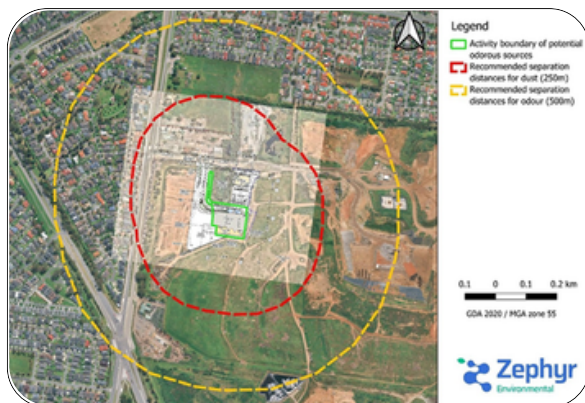
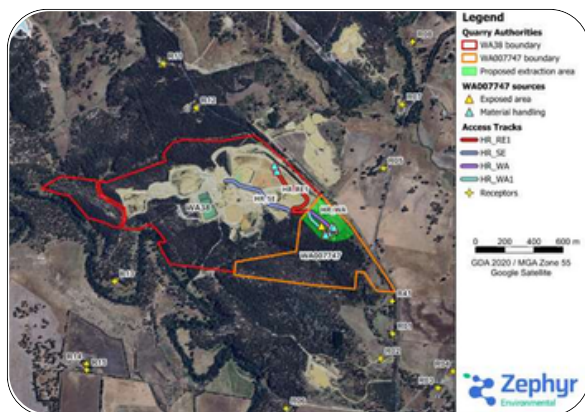
Data analysis & interpretation



Atmospheric dispersion modelling



Flagship Air Dispersion Modelling Projects



Development of a Steelworks Emissions Model

We developed a flexible, site-wide air dispersion model for a steelworks to allow testing of alternative emission scenarios across more than 40 point, area and buoyant fugitive sources. The model covered particulates, gases and metals, and now supports long-term environmental management.

Quarry Air Quality Assessment

We completed an air quality assessment for a proposed sand quarry expansion involving five years of AERMOD dispersion modelling for PM₁₀, PM_{2.5} and respirable crystalline silica. Results showed that background concentrations, rather than project emissions, were the dominant driver of particulate levels. The findings supported a justified variation to the standard 500-metre separation distance.

Odour Risk Assessment for a Resource Recovery Precinct

We undertook a comprehensive odour risk assessment for a proposed 550,000-tonne-per-year waste transfer and resource recovery precinct. Using field odour surveillance from a reference site and site-specific WRF meteorological modelling, we demonstrated that best-practice controls—including negative-pressure enclosures, rapid-close doors and carbon-filtered containers—would reduce odour impacts to negligible levels at all sensitive receptors.

Adaptive Dust Management System

We delivered an innovative digital ADMS for a combined landfill and resource recovery facility. The system integrated real-time PM_{2.5} and PM₁₀ monitoring with an automated escalation protocol covering four operational levels, triggering alerts and recommended actions when thresholds were exceeded. This transformed traditional paper-based dust management into a responsive, real-time operational tool that supports compliance and community protection.

If these case studies — or any of the other services we offer — sound like they could add value, please don't hesitate to reach out. Our team is always ready to discuss your goals, answer any questions, and explore how we can best support your success.

Get in touch with our team at:



info@zephyrenviro.com



Zephyr Environmental



www.zephyrenviro.com