

Mitigating Odour Impacts from Manufacturing Plant Expansion

CHALLENGE

The proposed expansion of a Queensland manufacturing plant could potentially increase odour impacts and expert modelling was needed to determine weather-dependent impacts.

SOLUTION

Trinity conducted odour sampling of various on-site sources, then used the data to model odour emissions based on existing and proposed operations.

RESULT

The dispersion model successfully estimated the levels of emissions reaching sensitive receptors showing minimal impacts and leading to recommendations of potential odour mitigation and management measures.

The proposed expansion of a South-East Queensland manufacturing plant was designed to facilitate an increase of the facility's production. The key driving factor for this project was the potential for the proposed changes to increase odour impacts, with odour especially dependent on weather conditions. Thus, expert modelling and interpretation were required.

Trinity Consultants Australia provided odour assessment services including odour sampling and air dispersion modelling for the proposed expansion.

Trinity conducted odour sampling of various on-site sources, then used the data to model odour emissions based on existing and proposed operations. Modelling was performed using CALPUFF based on site-specific meteorology data. Existing odour sources included a range of source types, such as process stacks, raw materials, biofilters and wastewater ponds.

The proposed expansion included a biofilter that would be used for filtering process air from a new building. Many of the odour samples were collected using a flux hood in accordance with AS 4323.4:2009 Stationary source emissions – Flux chamber technique. Samples were analysed by a NATA accredited laboratory in accordance with AS 4323.3:2001 Station source emissions – Part 3: Determination of odour concentrations by dynamic olfactometry.

The dispersion model successfully estimated the levels of emissions reaching sensitive receptors. The predicted results showed that the addition of the proposed facility had minimal influence on cumulative off-site odour concentrations, which was defined by the existing facility. Potential odour mitigation and management measures were recommended in discussion with the client.