

RP2008

BENEFICIAL RE-USE OF BIOSOLIDS

- ODOUR MINIMISATION

Problem

Biosolids have the potential to smell very offensive! However their application to land can increase the organic levels in soils, so they act as a carbon sink, as well as improving crop yields. In Sydney our biosolids are currently transported long distances to remote locations before they are applied to land due to potential odour impacts

Figure 1. The land application of biosolids can be very beneficial



Reducing the potential odour of biosolids can reduce social barriers to their application in less remote areas, closer to wastewater treatment plants. Improving community acceptance around treatment and application sites, as well as reducing transport distances.

Biosolids odour minimisation needs tailor made, plant specific approaches.

Many interrelated factors are involved with odorant generation and degradation and their influences can vary at each site, therefore odour minimisation needs to be approached holistically, looking at all related influences at a site.

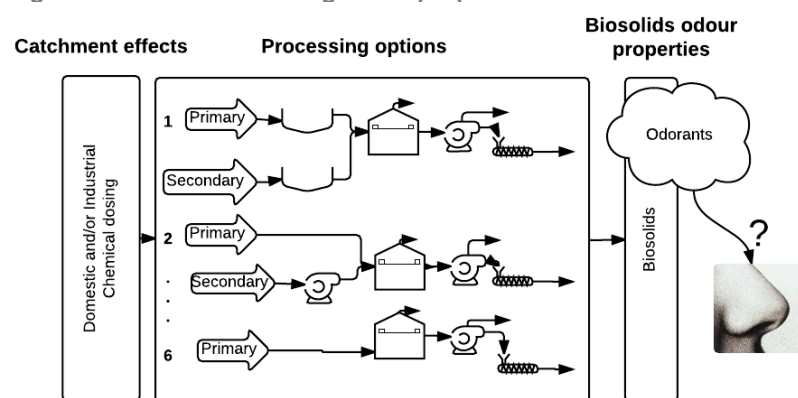
Solution

The aim of this project is to understand the impact of biosolids processing on the odorants released from the stabilised product. The first stage of the project involves finding correlations between odour emissions throughout biosolids processing, and plant set-up, operation and catchment properties. Data is being gathered from six Sydney Water, and one from Hunter Water biosolids processing plants.

The plants will be compared based on their unit processes to understand how the odorant production throughout the plant is affected.

Another aspect of the project is determining whether certain emission could be perceived as a nuisance. Rather than focusing only on odour strength, other properties such as the hedonic tone and odour character may provide a better indicator of whether an odour will be perceived as a nuisance.

Figure 2. Factors influencing odour properties of biosolids



Benefits

This project will deliver a model for the prediction of odour emissions from biosolids based on different unit processes. The verification of the model will be performed in the optimisation trials.

In addition a framework will be developed to represent the potential impact on the community upon release of the emissions based on the chemical and sensory properties of the emission mixture. These tools can be used by the wastewater and wider waste management utilities to understand the generation of odours and their impacts on the community.

Contact

Ruth Fisher

School of Civil and Environmental Engineering
UNSW,

Email: Ruth.Fisher@unsw.edu.au