

Sampling and monitoring (for bioaerosols)

DEVELOPING A SAMPLING AND MONITORING PLAN FOR YOUR SITE

To develop a suitable sampling and monitoring plan for your site, you need to understand your task activities and where the risks are. Things to consider when developing a plan include:

a) Frequency of monitoring

- ▶ Bioaerosol levels are influenced by so many factors such as waste composition, environmental conditions (weather, location), site layout etc. A one-off or 'baseline' assessment is unlikely to give you a representative assessment of actual exposure levels so multiple measurements may be required.
- ▶ At least 2 samples in different seasons are recommended to give sufficient information on which to understand the risks.
- ▶ For high-risk activities, or where exposure is varied, it is recommended that monitoring is repeated every 14 months.

b) What to look for

- ▶ It is important to ensure all organisms that may cause adverse health effects are considered, so a sampling method that considers dusts as well as viable and non-viable species is preferred.
- ▶ The key viable organisms associated with waste treatment operations for consideration in addition to those in the appendix 2 of [WISH INFO23](#) are gram negative bacteria and thermophilic actinomycetes due to their specific relevance to potential health effects.

- ▶ To enable a more thorough health-based assessment of exposure, it is also recommended that sampling considers endotoxin as a non-viable species as this is a known respiratory inflammatory agent.

c) Where to measure

- ▶ Static or area samples provide a useful indication of potential high and low exposure zones. Consider static sampling at points where the waste may be agitated: belts drops, screeners, shredders, or where the waste may be turned using mobile plant.
- ▶ Consider workers engaged in non-related activities but which need access through a zone (eg litter pickers).
- ▶ Personal monitoring is recommended to get an accurate understanding of task based exposure and this should be considered for tasks such as maintenance and cleaning of equipment as the disturbance of settled biological material could affect the breathing zone of the operatives.
- ▶ Both methods should be considered jointly to provide a holistic view of the exposure at the site.

d) Sampling duration

- ▶ For static sampling, this should be monitored for a minimum of 4 hours, this can be split to get a good representation of the typical activities being carried out - there may also be some monitoring time limitations depending on the sampling methodology e.g. you can only sample for up to one hour for viable organisms or they just dry out on the filter paper. This should be advised by the competent contractor.
- ▶ For personal monitoring for specific activities, the monitoring should continue for the task.