



# Levenseat Ltd

*Specialists in Waste Management*

## *Environmental Responsibilities*

### *Waste water management*

Contaminated water arises at Levenseat arises from two principal sources – the landfill and compost blocks. Contamination arises when rainfall comes into contact with waste. The principal contaminants are nutrients which can be metabolised by micro-organisms and if water with a high nutrient load were discharged into local burns the result could be an algal bloom which would cause depletion of the oxygen dissolved in the water. This in turn could result in the deaths (effectively through suffocation) of fish and other animal life. It is therefore important to remove the nutrient load from rainwater which has been in contact with waste.

This is achieved in a specialised waste water treatment plant which uses activated sludge technology. This is simply the cultivation and husbanding of a population of micro-organisms which metabolise the nutrient load in the waste water. The principal requirements of the system are that the micro-organisms are supplied with sufficient oxygen to permit the required consumption of nutrients and that temperatures are maintained in excess of around 12° C.

### *Gas management*

The decomposition of waste in a landfill generates gases of which the principal component is methane. (This results from anaerobic conditions (lack of oxygen) within the waste mass.) This gas is harvested and used to generate electricity. Harvesting is achieved by developing the landfill as a small gas field – drilling gas wells into the waste and applying negative pressure. The gas is then piped to a generating engine from which electricity is exported to the national grid. Generation at Levenseat operates at approximately 0.5mW.

### *Odour control*

Waste management operations can sometimes give rise to offensive odours. Generally these can be avoided by good management practices but occasionally situations arise which present control difficulties. At Levenseat we recognise three principal potential sources of odour

The **landfill** emits a range of gases of which the principal components are methane and carbon dioxide, both odourless gases. These are however generally mixed with small quantities of odiferous gases, including hydrogen sulphide which has a « rotten eggs » smell. The best way to deal with this is to deploy active gas extraction from the landfill. This is described more fully under gas management.



**Composting** operations can produce odours if the condition of the compost becomes anaerobic which means that there is insufficient oxygen and the biochemical activity in the compost switches away from being aerobic - using oxygen to metabolise nutrients. This is one of the reasons why our composting operations use active aeration – the other being that it yields more efficient processing and better quality compost.

Our **waste water treatment** operations can result in the emission of odours for similar reasons – insufficient oxygen results in anaerobic conditions in the treatment lagoons and the products of anaerobic biological activity tend to be odiferous. Anaerobic conditions occur when there is an imbalance between the level of nutrients in the water being treated and the quantity of available oxygen. Odours are therefore avoided by (a) ensuring that the treatment system does not become overloaded with high nutrient liquor ; and (b) maintaining a sufficient supply of oxygen

### ***Litter control***

At Levenseat we recognise that litter is an offensive and avoidable nuisance which sometimes arises from waste management operations. We control litter by:

- Deploying litter nets at the periphery of our operations
- Using a litter “cage” in which to landfill waste during windy conditions
- Ensuring that potential sources of litter are secured
- Enforcing strict rules which require vehicles delivering waste to be enclosed or “sheeted”

In the event that litter does escape we deploy patrols of litter pickers to clean up. If you observe any litter in the vicinity of one of our sites please contact us and we will take immediate action.

### ***Bird control***

In common with other waste management sites, Levenseat tends to attract scavenging birds, principally gulls which, research has shown, comprise a transient population which visits for a few days at a time a number of food sources, both natural and human-generated. In order to ensure that the numbers of birds do not become a nuisance we require to maintain a degree of control over numbers. We do this using a portfolio of measures, including:

- Minimising exposure of waste which includes food attractive to birds
- Scaring of birds using “bangers”
- Patrolling the site with live falcons



### ***Landscape management***

Levenseat acknowledges its responsibility to contribute to the development of the landscapes in which it operates. To this end it has over the past 20 years planted a total of 250,000 trees in 8 blocks.

### ***Surface restoration***

Levenseat's policy requires its landfill sites to be progressively restored and landscaped to blend with their surroundings. To date this has involved making the land useful for grazing and this has been achieved by installing good drainage and then applying and cultivating topsoil to produce a grass sward.

### ***Monitoring***

Levenseat follows a strict and extensive regime of monitoring the environment of its operations. This includes taking samples of groundwater from a total of 18 boreholes, sampling water from local burns and checking for landfill gas in the rock strata surrounding the landfills.

### ***Regulatory compliance***

At Levenseat we are subject to a range of regulatory regimes including :

- Planning and development control
- Permits and licences issued by SEPA
- Approvals from the State Veterinary Service
- British Standards Institute Quality Standards
- Health and Safety legislation