Odour Control Systems Limited

CASE STUDY

Leachate Odour Complaints Eliminated At Landfill Site

Stewartby Landfill Site in Bedfordshire

When the U.K.'s leading waste management company, Shanks and McEwan started receiving complaints of "foul smells" from its Stewartby Landfill Site it knew it had to provide a rapid and environmentally friendly solution.

IMAGE TO BE INSERTED

Caption Text

The 180-acre landfill site at Stewartby in Bedfordshire handles over one million tonnes of waste each year. Each day it accepts and processes 4,500 tons of London's household waste from its rail terminal and processes spoil and special waste from some 400 vehicles. The company takes its environmental responsibilities very seriously – it maintains a rigid corporate environmental policy which draws together all the procedures and initiatives in to one coherent statement for good environmental management.

During a prolonged hot spell in the spring of 1995, residents from the nearby village of Stewartby were subjected to offensive odours, which were traced back to the landfill site. An investigation by Shanks & McEwan soon traced the source of the smell to the leachate lagoons, which had become sulphidic in the hot weather. As a result a classic hydrogen sulphide "bad eggs" odour was being generated which was then carried on the prevailing winds to the surrounding area.

Testimonial

"I'm a great believer in BIO-ACT," says Donald Moffat. "It did a great job and the situation is now firmly under control."

BIO-ACT

BIO-ACT is a carefully selected, precisely balanced blend of several bacterial strains.

Key Characteristics Include:

- Strict and facultative properties able to thrive under anaerobic and aerobic conditions of up to 2ppm dissolved oxygen
- Live liquid form
- Capability of photo-lithotropic and photo-organotropic metabolism under anaerobic conditions
- Fixation of molecular nitrogen
- Motile via polar flagella
- Some members exhibit excellent growth at low (4°C) temperatures
- Growth over pH levels oc 6.0 – 9.0
- Growth possible utilising sulphide as the sole electron donor
- Capability of oxidative metabolism without light under microaerophilic conditions
- Will utilise organic substances in the absence of hydrogen sulphide

N.B. References on individual applications are available, whilst other industrial wastes can be laboratory tested for suitability of treatment with BIO-ACT. BIO-ACT is non-toxic and non-pathogenic. It is harmless to aquatic life and compatible with other desirable bacteria in waste water. The product is authorised by the U.S. Department of Agriculture for applications within Federally Inspected meat, poultry and egg processing plants.

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Responsibility for researching methods to control the odours at the Stewartby site was in the hands of Landfill Operations Manager, Donald Moffat. Recognising the company's obligations to both its own operatives and the local environment, Donald knew he had to react positively to the complaints and keep in line with the company's strict environmental policy.

IMAGE TO BE INSERTED

Caption Text

The use of perfumes to mask the odours was considered but these were known to be an incomplete solution. In practice both the offensive odour and the perfume were perceive and as a result the levels of complaints were certain to continue.

Several alternative remedies were considered, but following an initial consultation with Odour Control Systems Ltd, one of the U.K.'s leading specialists on odour treatment and control, an odour-monitoring programme was introduced using OCS sulphide detection and measurement tubes. These were used to measure the hydrogen sulphide levels on the leachate lagoons.

From the results of the hydrogen sulphide monitoring programme and a review of conditions, OCS recommended a programme of inoculating BIO-ACT, a biological approach to odour control, which treats the source, not the symptoms, into the contents of the lagoon and the clay lining which had over the years become saturated with hydrogen sulphide.

IMAGE TO BE INSERTED

Caption Text

Specialised bacterial strains have the ability to utilise dissolved hydrogen sulphide in their metabolic process. BIO-ACT comprises of a carefully selected, precisely balanced blend of several naturally occurring strains of both strict and facultative anaerobics, in live liquid form. They are non-hazardous, non-pathogenic, harmless to aquatic life and compatible with other desirable bacteria in wastewater.

Since its launch into the UK market some five years ago, OCS BIO-ACT has been used by many sewage treatment works and landfill sites, where it has proved to be a most successful method of treating offensive odours.

OCS installed a custom designed dosing system for Shanks & McEwan, which automatically injects a correctly timed dose of BIO-ACT into the leachate lagoons. This BIO-ACT plant was installed in May 1995 and the level of complaints quickly declined as the product established itself.

Within one week the complaints had ceased altogether.

Hydrogen sulphide levels are now measured on a regular basis and the appropriate amount of BIO-ACT is injected to cope with an ever-changing situation. The BIO-ACT programme has been highly successful and operated at a fraction of the cost of alternative methods such as hydrogen peroxide dosing.

Contact

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preserving the environment

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