

2



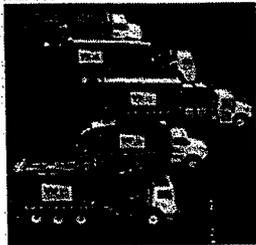
From Everyday Collection to Environmental Protection, look to the NEW Waste M

RECEIVED
NOV 13 2003
[Signature]



3662

- About WM
- WM Services
- Environmental
- Press Room
- Investor Relations
- Community
- Governance
- Ethics & Diversity
- Procurement



Overview
For Business
For Industry
For National Accounts
For Homes
For Public Sector
For Disposal
Bioremediation
Waste to Energy
WastebyRail
Recycling
Needle Disposal
Services Inquiry

Bioremediation

On-site remediation of soils and media contaminated with petrochemicals, pesticides, explosives, or hazardous organics can be an expensive and time-consuming process. There are also serious legal and regulatory issues to consider when decontaminating soils on location, issues that can jeopardize the viability of a construction or redevelopment project.

Waste Management, the world's largest solid waste services company, has developed a collection of innovative off-site remediation technologies to help companies deal effectively with contaminated soils. These bioremediation services include:

TOSSSM (Two-Step Static System).

TOSSSM is a two-stage, solid-phase bioremediation technology that involves both anaerobic and aerobic treatment stages. In the first stage, explosives-contaminated soil is combined with a carbon source, an inoculum, vitamins and water to achieve anaerobic conditions. The resulting mixture is formed into a static pile or placed in a bermed construction or box to facilitate the chemical reduction of nitroaromatic and nitramine explosives. In the second stage, the anaerobically treated soil is combined with yard waste compost and built into an aerated biopile. The biopile may be aerated by forced air conveyed through perforated piping buried within the pile or by turning the pile with a compost turner. Previous testing of TOSSSM has demonstrated TNT removal efficiencies of greater than 99%.

Bio-In-A-Box.SM

Bio-In-A-BoxSM is based on the same principles as both BioSiteSM and TOSSSM, but is designed to operate indoors on a relatively smaller scale. Instead of being formed into long earthen mounds, the contaminated soil is moistened, mixed with nutrients and custom-grown microorganisms, and then placed in enclosed containers called "solid phase bioreactors" for incubation. These containers may or may not be linked to aeration and vacuum pipes, depending on the contaminants being processed. In just a few weeks, the decontaminated soil will be ready for landfill disposal or reintroduction into the environment.

The BioSiteSM System

The BioSiteSM System is Waste Management's proprietary system for the large-scale bioremediation of soils contaminated with petrochemicals including, but not limited to:

- Acetone
- Alcohols
- Benzene
- Ethylbenzene
- Methyl Ethyl Ketone (MEK)
- Methyl Isobutyl Ketone (MIBK)
- Petroleum Hydrocarbons
- Toluene
- Two- and Three-Ring PAHs.
- Xylene

The BioSiteSM System can also handle other contaminants, including:

- Aliphatic Chlorinated Hydrocarbons (e.g., Trichloroethylene)
- Spent molecular sieve from packing towers
- Chemical manufacturing wastes
- Pesticides

Regulated compounds including Underlying Hazardous Constituents (UHC) are screened prior to acceptance. Soils co-contaminated with metals may be accepted depending on their concentration.