US EPA ARCHIVE DOCUMENT
ORD’s Landfill Research Priorities

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Landfill Research

- Alternative cover techniques for landfills
- Protocol for design of alternative covers
- Field evaluations of liner performance
  www.epa.gov/ORD/NRMRL/Pubs
- Innovative construction quality assurance
- Long term performance of containment systems
Landfill Research (cont)
Superfund and Brownfields

- Hydraulic control – covers, permeable reactive barriers
- Ground water/indoor air pathway
- Land use options for reuse of landfill sites
Landfill Research (cont)

- Assessment of fugitive gaseous emissions from waste containment facilities
- Guidance on evaluating landfill gas emissions to determine need for gas collection and control
- Update and/or develop LFG emission factors
What is a landfill bioreactor?

- Liquid additions to a landfill, designed and operated in a controlled manner with the express purpose of accelerating the degradation of solid waste inside a containment system.
Bioreactors – Research Challenges

- Which bioreactor operational techniques most efficiently degrade waste?
- How can operators distribute leachate and collect gas efficiently in a bioreactor setting?
- How can an interim cover be applied to a waste mass that is settling?
- How do operators ensure physical stability?
- How much moisture addition is optimal for degradation?
- What limitations exist for natural degradation?
- When can the landfill be “switched off” and close?
- How can operators learn to control their bioreactor?
Planned ORD Bioreactor Research Outputs

- Interim field assessment of a bioreactor systems
- Report/fact sheet for guidance on landfill gas evaluation
- Interim bioreactor design manual
- Bioreactor design and monitoring manual
QUESTIONS?