

The 3rd Intercontinental Landfill Research Symposium

Bioreactor Session I: “Design and Operation of Bioreactor Landfills”

Session Moderator: Tim Townsend

(1) Topic Description:

The operation of municipal solid waste landfills as bioreactors has emerged as major topic in the solid waste management community in recent years. The primary focus of most lab-scale and pilot studies in past have been to evaluate the beneficial aspects of liquid (leachate, water, or other liquid waste) and air addition to the landfilled waste. The lack of operational experience at the full-scale level, however, has limited the application of this technology. This session will provide short presentations on several issues pertaining to the design and operations of bioreactor landfills. Three specific topics will be examined, with two presenters for each topic. The oral presentations will be limited to 15 minutes each, leaving 20 minutes of discussion for each topic. All six panel members will be available to participate in each discussion topic. It is assumed that the presenters will have accompanying posters for more detailed discussion of each presenter’s work.

(2) Bioreactor Landfill Design and Operations Topics

a. Liquids addition

Key Questions:

What are methods are available to add liquids?

How do you design and operate liquids addition systems?

b. Addition of air

Key Questions:

How can air addition be used to enhance bioreactor operation?

How should air addition systems be designed and operated?

c. Operational experience

Key Questions:

What are key operational requirements for bioreactors?

What operational lessons have been learned at full-scale bioreactors?

(3) Session Organization:

Total Time: **3.5 hours**

6 presentations – 15 minutes each

The session will be arranged for discussion on the abovementioned four questions. Each question/topic will have 2 presentations of 15 minutes each. Large group discussion period (20 minutes) will follow the presentations. The discussion will focus on the questions raised during the presentations as well as questions pertaining to the topic in general. All of the panel members will be participate in the discussion. A 30-minute discussion period will follow the presentations and discussion of the individual topics.

Proposed Session Schedule

Time	Presentation Title¹	Speaker
8:30	Opening remarks and introduction of session	Townsend
Topic: Liquids Addition		
8:45	“Leachate Pre-treatment for Leachate Recirculation System in Ämmässuo Landfill” ABSTRACT #77	Yu/Markku
9:00	“Design and operational guidelines for vertical well leachate recirculation system for bioreactor landfills” ABSTRACT #32	Jain
9:15	Topic Discussion	Panel/Audience
Topic: Addition of Air		
9:35	“Reducing landfill emissions with vacuum bioreactor operation” ABSTRACT #25	Hansen
9:50	“Application of aerobic and anaerobic landfill bioreactor technology for Japanese landfills” ABSTRACT #29	Inanc
10:05	Topic Discussion	Panel/Audience
10:25	<i>Break</i>	
Topic: Operational Experiences		
10:40	“Yolo County bioreactor program – bioreactor performance, observations and research needs relating to regulatory and environmental concerns” ABSTRACT #02	Augestein
10:55	“Learning from R&D to implement operational commercial bioreactor landfills – Overview of ONYX experience” ABSTRACT #13	Bureau/Moreau
11:10	Topic Discussion	Panel/Audience
11:30	Session Discussion	Panel/Audience

¹ Presentation title based on submitted abstract. Title may change according to focus of session