

## **Measurement of Decomposition Rates in Landfills**

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#### **Topic Description**

While the conversion of cellulose to methane in landfills is well documented, there is little information of the rate and extent of decomposition of individual waste components under field-scale conditions. Existing data include laboratory-scale studies to measure the ultimate yield of individual waste components, measurements of cellulose loss in bulk refuse samples excavated from full-scale landfills, and a limited amount of data on the decomposition of individual waste constituents in landfills.

An understanding of the rate and extent of paper and wood products decomposition in landfills is required to quantify the associated production of greenhouse gases as well as carbon sequestration in landfills. However, a recently completed literature review concluded that these data were not available. Furthermore, the field-scale experiments designed to conduct these experiments are complex and long-term.

The overall objective of the session is to discuss the design of experiments to measure solids decomposition and methane production rates for specific waste components that are relevant to full-scale landfills. As a starting point, a literature review written by Morton Barlaz is available to download from:

<http://www.ncasi.org/Publications/Detail.aspx?id=97>

“Critical Review of Forest Products Decomposition in Municipal Solid Waste Landfills”

#### **Questions**

How do we measure the rate of solids decomposition for individual waste components at field-scale?

How do we collect the data required to measured methane production decay rates for methane production modeling?

#### **Schedule and Participants**

- 0 – 30 Introduction and Overview of Literature Survey (Barlaz)
- 30 – 50 Decomposition of wood and paper products in landfill, David Gardner, (abstract # 21gard)
- 50 – 65 Identification of Additional Data – 15 minutes
- 65 – 80 Definition of Experimental Objectives and Proposed Design– Barlaz
- 80 – 110 Break Out Groups to Critique Experimental Design
- 110 – 150 Report on Group Discussions by Group Leaders and Summary

#### **Outputs**

The existing literature survey is the major output. I hope to write a review article based on this report.