

SESSION – Landfill Risk Assessment and Finding Socially-Acceptable Solutions

**SESSION LEADERS – Susan Thorneloe (U.S. EPA/National Risk Management Research Laboratory, USA)
Toshihiko Matsuto (Hokkaido University, Japan)**

Overview

Sustainable waste management is achieved through finding socially-acceptable solutions that minimize environmental impacts and cost. Different tools are used to help assess the impacts and costs. Risk assessment tools are widely used to evaluate the potential risk for specific or proposed facilities. Detailed, site-specific data are used to document exposure, toxicity, and risk. Successful communication of the results is critical to public acceptance.

Life-cycle tools are also being used in many countries as part of solid waste management planning. These tools take a holistic approach to quantifying the multi-media and multi-pollutant burdens associated with collection, transportation, recycling, combustion, and landfilling. The outputs of these tools are used in developing solid waste management plans and helping to track environmental performance and improvements.

Landfills can be a challenge to evaluate due to the duration and variability in emissions. Communication and credible assessment of risk to those living near a landfill are critical to public acceptance. This session's objective is to discuss those issues unique to landfills that must be addressed when evaluating risk and communicating those results to the public. Various aspects will be discussed including evaluating risk to groundwater and air, development of tools for risk assessment, and evaluating design and operating practices for minimizing any potential risk. There will also be a discussion of the use of life-cycle tools for use in solid waste management planning and how they can be used to compliment risk assessments.

Questions to be Addressed

1. What are the issues unique to landfills that make evaluating risk more difficult? How are those issues unique to landfills (e.g., variability and duration of emissions) being addressed in risk and life-cycle assessment tools?
2. Are risk assessment and life-cycle assessment tools complimentary? When are they used? How are the results communicated?
3. What are needs for further research for more successful quantification and communication of risk from landfill evaluation?
4. Are the available tools successful in striving towards more sustainable solutions for solid waste management?

Schedule and Participants

This 3 hour session will be divided into two shorter sessions. The first session will present information on tools being used for risk and life-cycle assessment. The second will present case studies applying risk assessment tools and communication of results. Each presentation will be 15 minutes followed by 10 minutes of questions and discussion. The presentations will be supported by posters.

Introduction and Session Goals (5 min.)

Susan Thorneloe (USA)

Tools for Risk and Life-Cycle Assessment

- 1) Research Tools for Landfill Risk Management – Mark W. Milke, University of Canterbury, New Zealand
- (2) Use of life-cycle assessment tools in solid waste management planning – F. McDougal, Procter & Gamble

Application of Risk Assessment and Communication of Results

- (1) A Geotechnical Design According to Groundwater Contamination Risk for MSW Landfill in Japan - K. Endo et al., National Institute for Environmental Studies, Japan
- (2) Evaluation of Air Pathway at Old Landfills and Assessment of Risk - S. Thorneloe, U.S. EPA, Office of Research and Development, USA
- (3) Resident's Concerns and Attitude to MSW Landfills – Matsuto, Hokkaido University, Japan

Open Discussion: 45 minutes

Closing Summary & Suggestions for Session Outputs: 5 minutes