

# **IWWG Task-Group „Landfill Aerobisation“**

**Chairman: Prof. Rainer Stegmann**

*Hamburg University of Technology, Institute of Waste Management*

*Harburger Schloßstr. 36, D – 21079 Hamburg*

*Phone: +49/40/42878-3054; Fax: +49/40/42878-2375; E-Mail: stegmann@tuhh.de*

---

## **1. Scope**

The creation of sustainable landfills is a fundamental objective in waste management worldwide. Whereas sanitary landfills nowadays can be constructed and operated according to the state of knowledge with respect to waste pre-treatment, lining systems, landfill gas and leachate collection, especially the old landfills often have more or less deficits in design and operation.

Consequently landfills often possess significant emission potentials with respect to polluted leachate and landfill gas (LFG) to be produced in considerable quantities. The objective of modern landfill operation is mainly a controlled utilisation of the energy provided by LFG and the prevention of hazards and risks to the environment caused by polluted leachate and migrating LFG. However, once the LFG utilization is not feasible or at least not beneficial anymore, many landfills still show significant emissions.

In this respect landfill aerobisation can be seen as a tool for the controlled and sustainable conversion of conventional anaerobic landfills into a biological stabilized state with a minimized emission potential.

The application of landfill aerobisation follows different strategies depending on the geographical region, the specific legislation and the available financial resources. Whereas in Japan the “semi aerobic landfill” is practised especially for an enhanced biological degradation the aerobisation in the US has more the intention for a fast recovering of landfill space and the production of stabilised waste material. In Europe, however, the aerobic in situ stabilization aims for a sustainable and controlled reduction of pollutant emissions from (old) landfills in order to reduce the period of landfill aftercare significantly.

Considering these different aspects of landfill aerobisation and the joint objective of creating sustainable landfills, the IWWG set up a working group (task-group) on “Landfill Aerobisation” in order to bring international expertise and knowledge together, define and homogenise the state of knowledge and disseminate experiences to the public concerned.

## **2. Objectives**

Specific objectives for the achievement of the overall aim include:

- Exchange of information between the group members
- Preparation of joint publications
- Realisation of joint workshops
- Development of procedures and standards for aerobisation including analytical programs
- Joint research projects
- Creation of a task-group web page
- Preparation of a Landfill-Aerobisation-Compendium

### **3. Topics**

- Heat generation and processes under elevated temperatures, Settlements
- Air distribution inside aerated landfill bodies & modelling
- Substance balances
- Leachate quality
- Costs
- Stabilisation criteria (completion of aeration), time periods to achieve stabilization
- Semi-aerobic landfills
- Nitrogen-dynamic
- Monitoring programs during Landfill Aerobisation
- Possibilities and limitations of aerobisation measures (e.g. waste densities, landfill height etc.)
- Pre-tests: Are they necessary and how long they should be practised?

### **4. Structure and operation mode**

The IWWG-task-group “Landfill Aerobisation” shows its international character through members from the US, Australia, Asia and Europe. The task-group operates in close contact with other IWWG-task-groups especially with those on “Sustainable Landfilling” and “Methane Oxidation”.

Meetings will be held at least once in a year whereas both, the SARDINIA-Symposium as well as the Intercontinental Landfill Research Symposium (ICLRS) serve as the main meeting platforms. Additional meetings, probably in smaller groups, are planned and welcome.

The activities of the group members will be in general coordinated by the task group chairman, communication between the members will be mainly conducted by electronic mail.

### **5. Members and Membership**

The task-group “Landfill Aerobisation” was founded in December 2004 during the 3<sup>rd</sup> ICLRS in Japan. Actually there are 25 registered members from 8 countries including several regular IWWG members. The group welcomes new members provided that the candidates offer expertise in one or more of the above mentioned fields. A complete list (September 2005) of the actual group members is given below.

**Chairman: Prof. Rainer Stegmann**

NAME	GIVEN NAME	COUNTRY
Stegmann	Rainer	Germany
Ritzkowski	Marco	Germany
Bentley	Harold	USA
Berge	Nicole	USA
Cossu	Raffaello	Italy
de Visscher	Alex	Belgium
Ettala	Matti	Finland
Gardner	David	Australia
Hansen	David	USA
Hilger	Helene	USA
Huber-Humer	Marion	Austria
Imhoff	Paul	USA
Jain	Pradeep	USA
Laurila	Tuomas	Finland
Miyawaki	Kentaro	Japan
Nakayama	Hirofumi	Japan
Powell	Jon	USA
Prantl	Roman	Austria
Reinhart	Debbie	USA
Rossetti	Davide	Italy
Sormunen	Kai	Finland
Tachfuji	Ayako	Japan
Tesar	Maria	Austria
Townsend	Tim	USA
Yoshida	Hideki	Japan