

1st Intercontinental Landfill Research Symposium

Lulea, 11-13 December, 2001

Session: Ash landfilling and carbonation

Session chair report by Holger Ecke*

The aims of the session *Ash landfilling and carbonation* were two-fold: First, to identify and to assess in-situ processes controlling emissions from ash landfills and, second, to suggest reasonable ex- and in-situ treatment processes.

Prior to discussion, six papers were presented dealing with research objects such as MSWI bottom ash, MSWI APC residues, FBC ashes, lignite ashes and other types of ashes (table 1). The investigations were focused on different objectives:

- Ex-situ stabilization through CO₂.
- Effect of lignite ashes in flooded MSW landfills on metal mobility.
- Development of a leaching protocol to estimate short- and long-term leaching behavior.
- Development of artificial weathering methods to simulate ash landfill conditions.
- Development of a prediction model for emissions from ash landfills.

During the discussion of the papers, research needs as follows were identified:

- Regarding metal mobility, what are the critical processes during ageing? Hydration, carbonation, reformation, redistribution or weathering? How are these processes affected by temperature, moisture, waste composition and CO₂?
- Development of robust metal extraction protocols leading to reliable and relevant data.
- How to decide whether ex-situ treatment, in-situ treatment or reuse is the better choice?
- Scale-up of ex-situ carbonation processes.
- Verification of results from lab- and pilot-scale with field data.

Table 1 Type of ashes investigated.

Type of ash	Paper						Sum
	(1)	(2)	(3)	(4)	(5)	(6)	
MSWI bottom ash		X	X			X	3
MSWI APC residue			X	X			2
FBC ashes	X		X			X	3
Lignite ashes					X	X	2
Others				X		X	2

*Affiliation of Holger Ecke:

Division of Waste Science & Technology, Luleå University of Technology, SE 971 87 Luleå, Sweden. Email: hoec@sb.luth.se