



CLIENTS | PEOPLE | PERFORMANCE

Odour Emission rate Measurements on Green-waste Windrows

Tim Pollock, GHD

19th Int. Clean Air & Environment Conf.
Area Source measurement Workshop

Perth WA 6 September 2009

Emission Profile on Active Windrows

- Issue in contention – emitting surface of GW windrow

Full perimeter -URS

6 : 1

Crest only -GHD

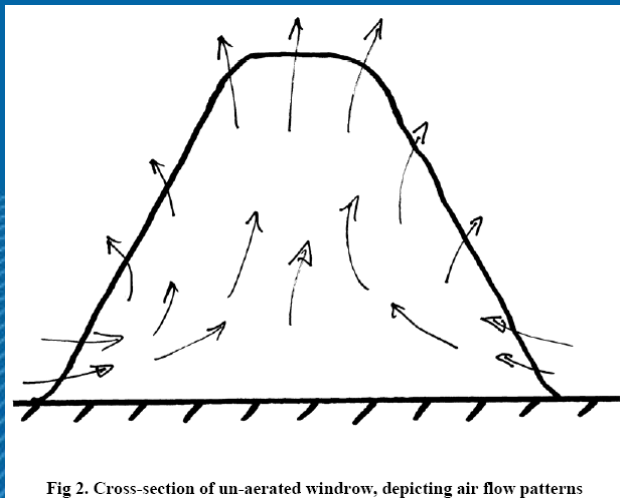


Fig 2. Cross-section of un-aerated windrow, depicting air flow patterns

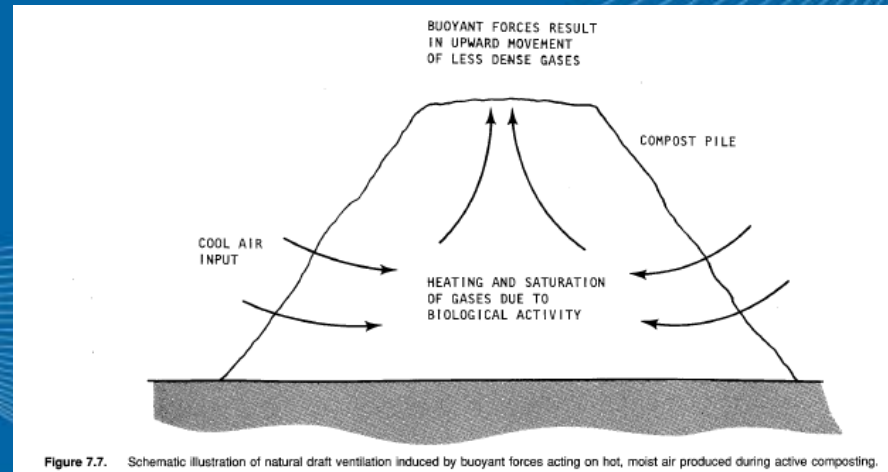


Figure 7.7. Schematic illustration of natural draft ventilation induced by buoyant forces acting on hot, moist air produced during active composting.

Visualisation

- Visualisation to support Crest only

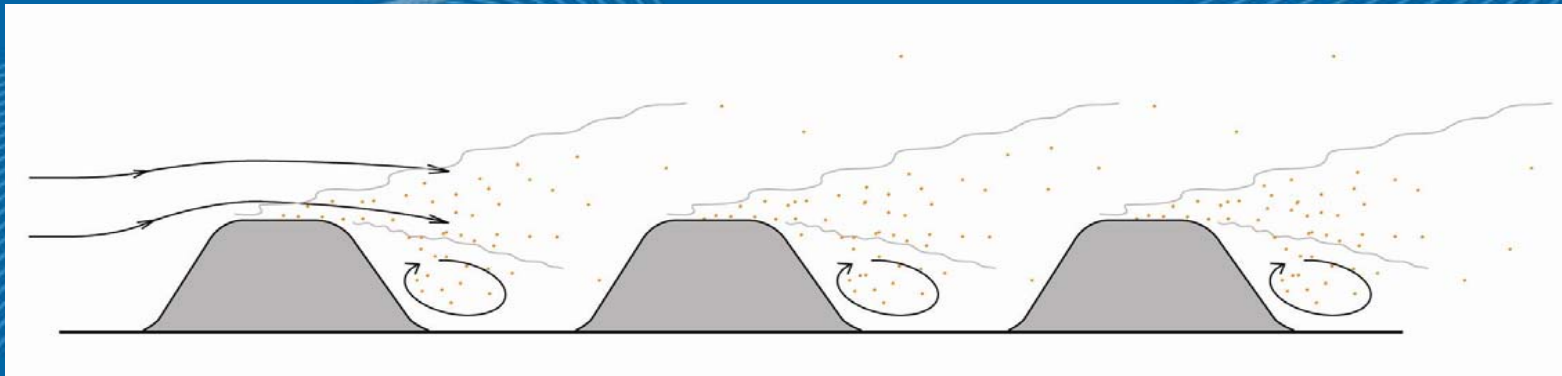


Visualisation cont.....



Plate 1. Photograph of water vapour emissions from ANL windrows on the morning of 14 June 2007

Visualisation to Support full perimeter emissions



SOER Trial on S1 Covered Windrows

IFC under-estimates SOER

A. 4 day old WR

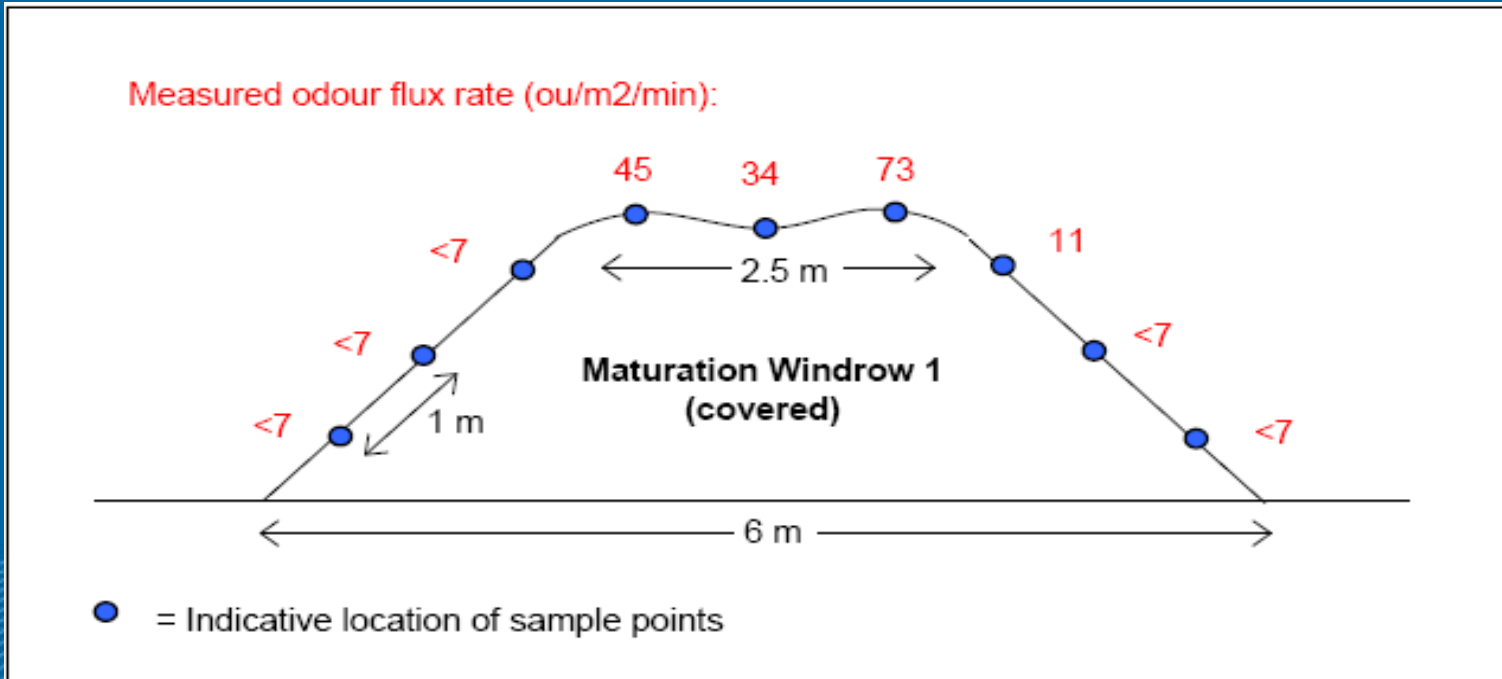
20 : 1



B. 6 wk old WR

1.5 : 1

SOER Profile on Covered Windrow



Results suggested emitting surface encompassed shoulders as well as crest

Draped Tunnel on Uncovered Windrows



Mark 1



Mark 2



Area Source Measurement – AS/NZS 4323.4

- Three Options :
 1. IFC with enlarged bleed orifice (Modesto used 6" dia.)
 2. Total enclosure
 3. Draped tunnel

Only option 1 could possibly meet requirements of AS/NZS

