

## **A study on Hydrogen Sulphide as potential tracer in landfill gas monitoring**

### **Abstract**

Municipal solid waste (MSW) landfills are one of the major source of hydrogen sulphide (H<sub>2</sub>S) which is the offensive odours potentially creating annoyance in adjacent communities. This project focuses on H<sub>2</sub>S emission from landfills in Perlis, Malaysia. Landfill gas (LFG) samples were collected and analyzed accordance with NIOSH method 6013. The mean concentrations of H<sub>2</sub>S in Kuala Perlis Landfill and Padang Siding Landfill are 210.68 ppm and 242.85 ppm respectively. High concentrations of H<sub>2</sub>S may be a concern for employees working on the landfill site. These results indicate that workers should use proper personal protection at landfill when involved in excavation, landfill gas collection, and refuse compaction. The formation of H<sub>2</sub>S most likely to be contributed by the biological conversion of sulfate from gypsum-rich soils and landfill wastewater treatment sludges by sulfate-reducing bacteria (SRB) which can utilize dissolved sulfate as an electron acceptor. H<sub>2</sub>S is conveniently detected by hand held analyzer, such Jerome meter, landfill gas analyzer. In the organic range, in the ease of detection range in the dispersion rate within the landfill site, the monitored H<sub>2</sub>S gas form a very noticeable concentration with the travelling wind direction. It proved that the dispersion rate of H<sub>2</sub>S are suitable as tracer to detect route of travelling in a certain distance

### **Keywords**

Hydrogen sulphide; Landfill monitoring; Organic tracer