

Critical Thinking Questions – Municipal Solid Waste Landfills

1. Describe the various types of landfills that are used to manage municipal solid waste landfills.
2. Sketch a modern landfill and identify the various components and the purpose of each component.
3. Compare US landfills to landfills that might be found in a developing country and to those in the EU (you may have to explore the internet to answer this question).
4. Determine the volume (ft³) and footprint (acres) of a landfill provided for a community with the following requirements:
 - Initial Population = 80,000
 - Population Increase = 2% per year
 - Per Capita Generation Rate = 4.8 lb/cap/d
 - Recycling Efficiency = 30%
 - Compacted Specific Weight = 1200 lbs/yd³
 - Average Cell Height = 40 ft
 - Cell Life = 4 years
 - Daily, intermediate, final cover = 23% of waste volume
5. Complete the following table that relates the phase of waste degradation to leachate, gas, and landfill operations characteristics.

Phase	Leachate Characteristics	Gas Characteristics
Aerobic		
Transition		
Acid formation		
Methanogenic		
Final Maturation		