

Environmental Geotechniques – Engi 7718
In Class Assignment – 19 June 2009
Answers

- the landfills have more capacity before closure due to rapid settlement
 - less settlement problems for the final cover as most of the settlement has already occurred
 - less total land area is required
 - it is easier to convert the gas to energy as gas is generated more rapidly
 - there are smaller leachate volumes requiring treatment that can mean lower costs
 - there can be more solids decomposition
 - there can be more total gas production
- A)
- B) The field capacity is the amount of moisture a soil or waste material will retain after excess moisture has drained off. For waste a typical value is 45%.
- C) Shredding, milling homogenizing
- D) There is concern that the higher leachate quantities in bioreactor landfills can increase the risk of leakage into groundwater. In addition there is concern that the accelerated decomposition and resulting higher temperatures may have adverse effects on the liner, leachate and gas
- E) At landfill Q the total recirculation was 419 L/Mg waste, application frequency was at roughly 10 to 14 days, and the typical dosage was 870 L/m-pipe. This level of leachate recirculation resulted in a faster rate of gas generation and a faster rate of waste decomposition.
- F) Under aerobic conditions the ammonia was converted into nitrate and then under the subsequent anaerobic conditions denitrification occurred and the nitrite was converted into nitrogen gas.