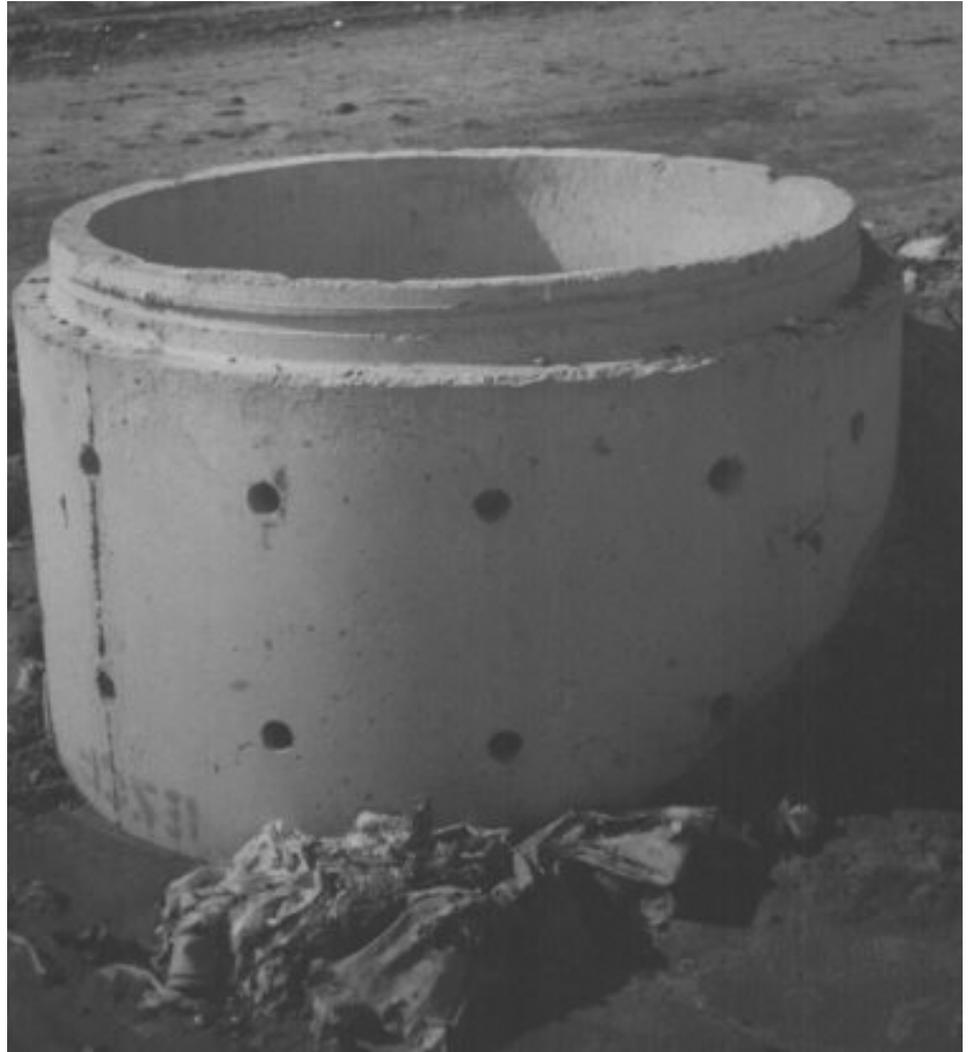


US EPA ARCHIVE DOCUMENT

Vertical Injection Wells

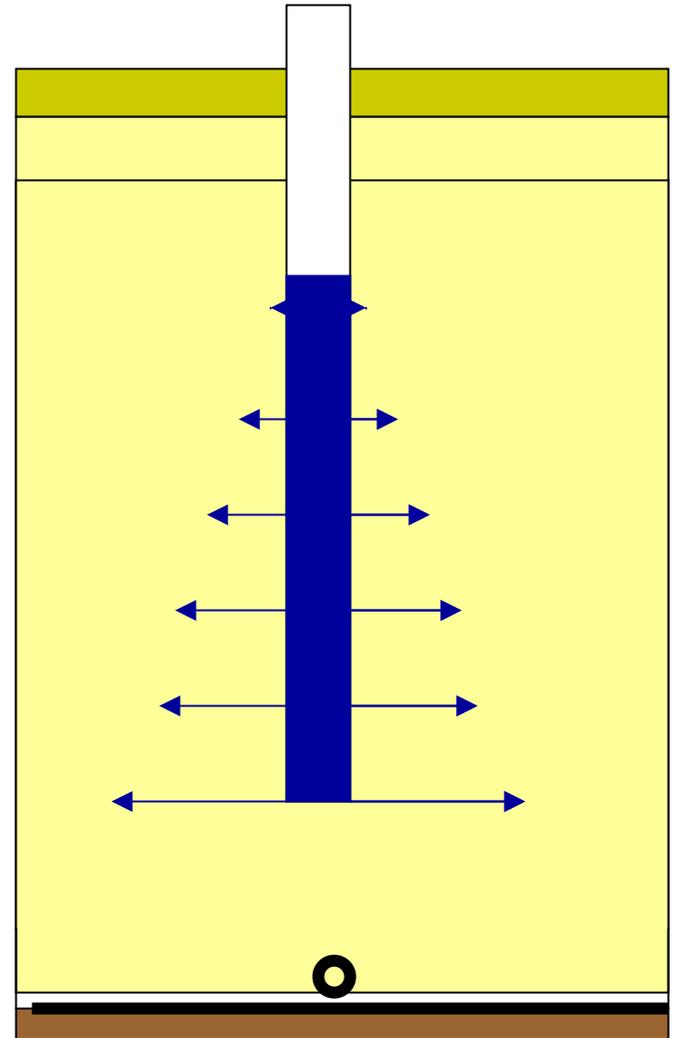
- Two major types
 - Large diameter wells
 - Small diameter wells
- Many of the early leachate recirculation attempts used large diameter wells
- Most new designs use small diameter wells

Large Diameter Vertical Leachate Injection Well



Potential Disadvantage of Vertical Wells

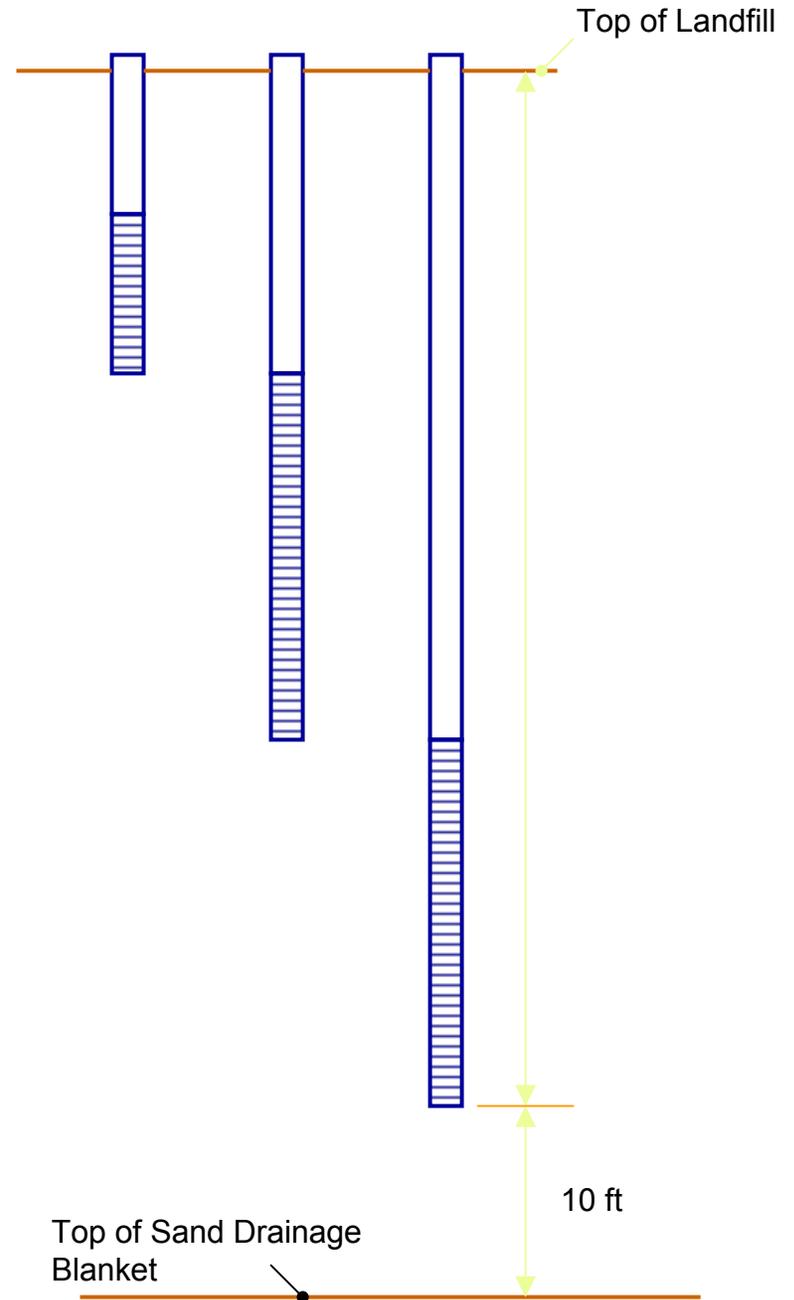
- The greatest hydraulic pressure will be at the bottom of the well.
- This might result in more leachate distribution on the bottom of the landfill.



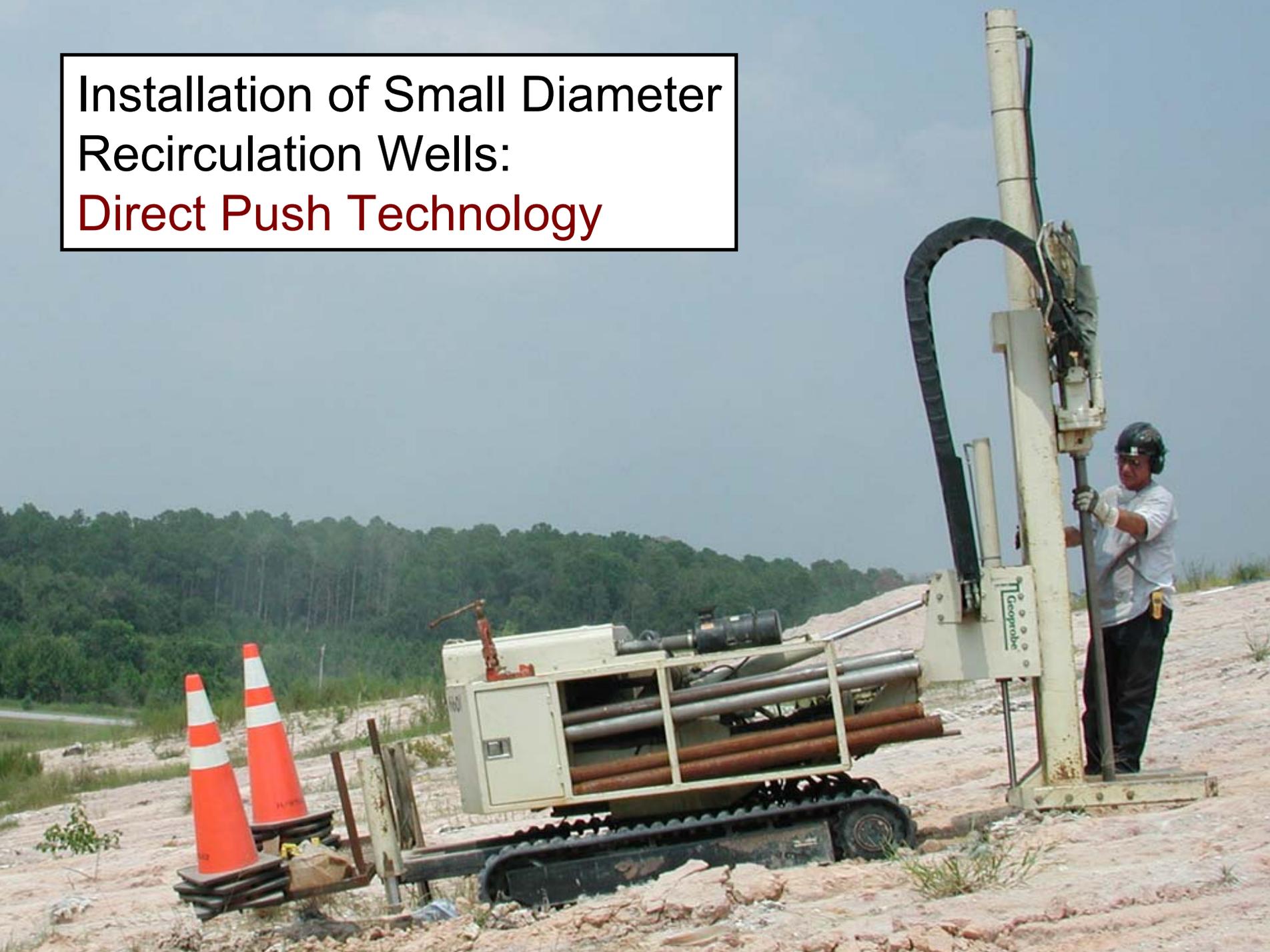
Vertical Injection Cluster Wells

Use multiple small
diameter wells.

Since more wells are
needed, installation
must not be cost
prohibitive.



Installation of Small Diameter
Recirculation Wells:
Direct Push Technology





Installation of
Small Diameter
Recirculation Wells:
Open Flight Auger

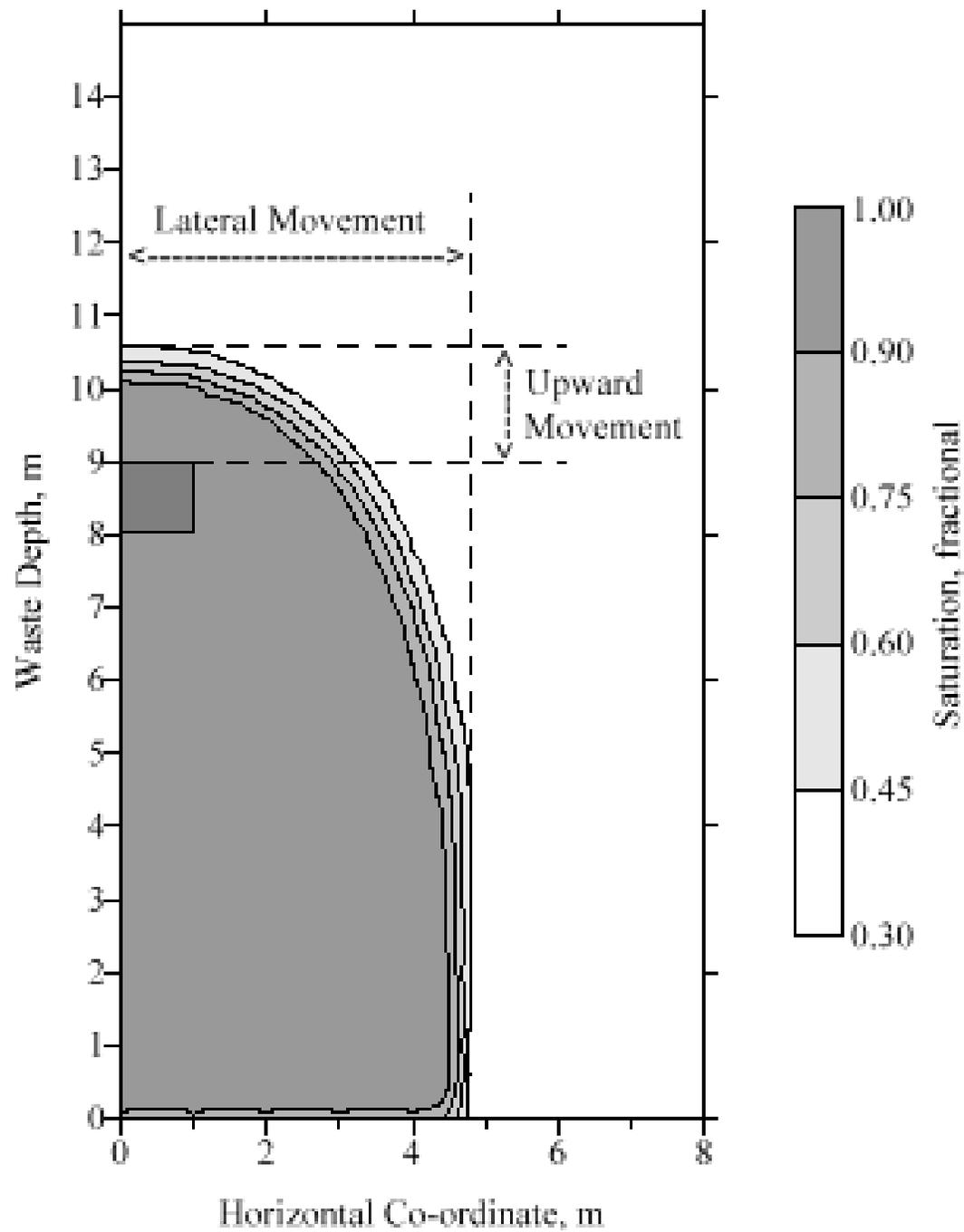


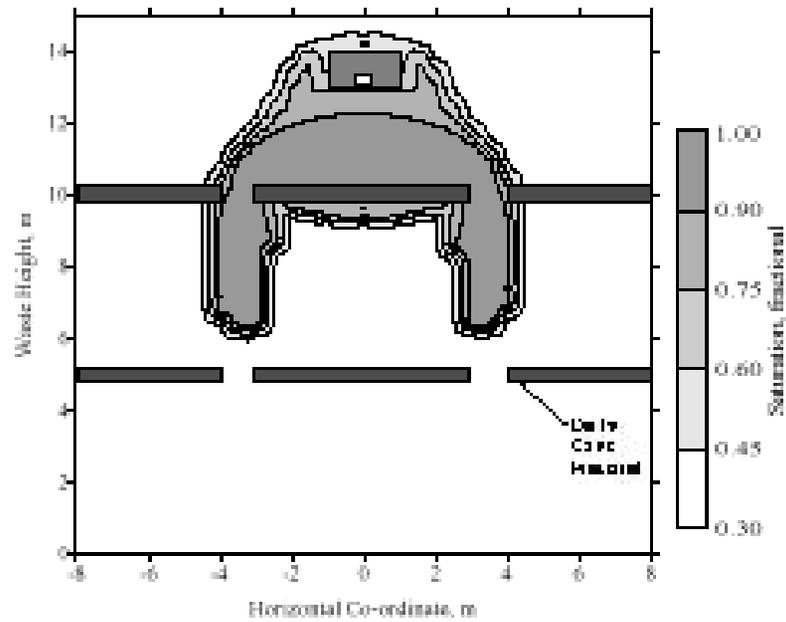




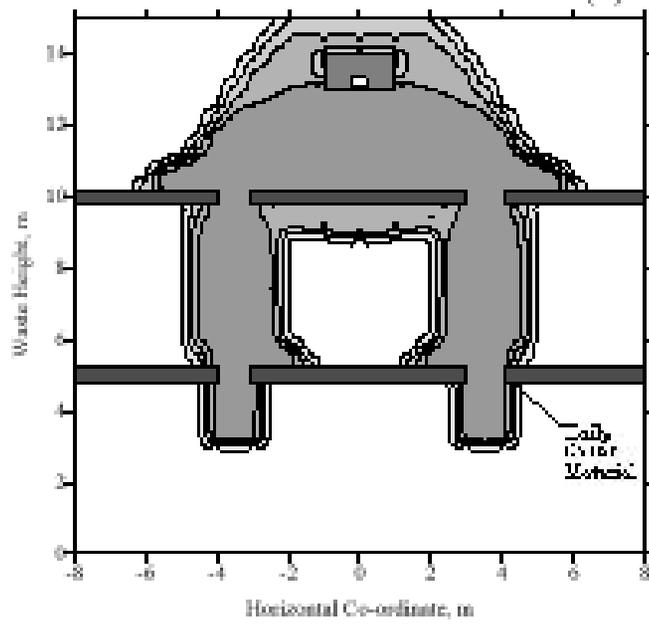
Comments on Moisture Distribution

- Hydraulic conductivity of compacted MSW is relatively low (especially in the vertical direction).
- Compacted MSW is anisotropic with respect to hydraulic conductivity.
- Channeling will occur.
- For subsurface applications, some of the waste will be at or near saturation for part of the time. Conditions will be above field capacity.

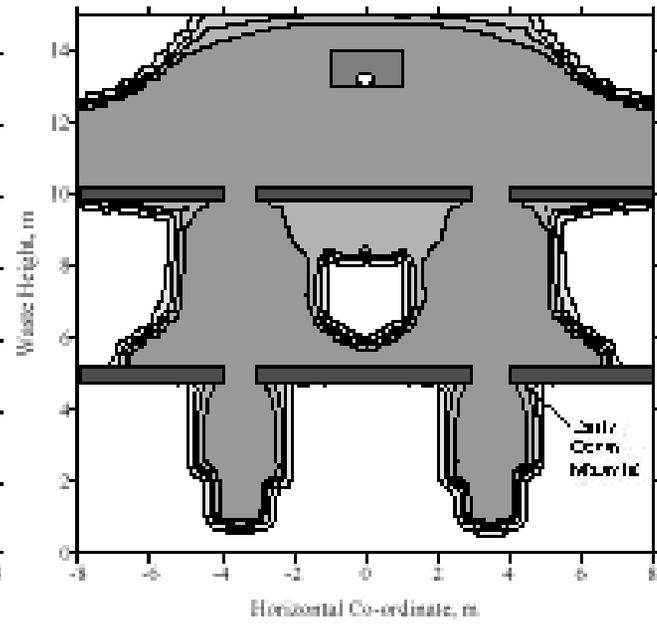




(a)



(b)



(c)