

6.7 COLLOID TRANSPORT

- Particles with diameters $< 1 \mu\text{m}$
 - Organic macromolecules
 - Metal complexes
 - Radioactive complexes (eg Plutonium)
- Colloids may sorb other solutes and mobilize
- Solutes with high retardation may sorb onto colloids and be mobile with very low retardation
eg Plutonium - low R for colloids
high R for soil

Main issues

1. Retardation/attenuation mechanisms do not operate
 - a) No sorption and reduced concentration
 - b) No slowing down due to v/R
2. Presence in monitoring wells may be due to accidental introduction of colloids - from equipment
 - precipitation of iron when O_2 added.
3. Some evidence to suggest some attenuation mechanisms
 - a) Multiphase interfaces trap due to surface tension
air/water water/solvent etc.
 - b) Non-neutral charges \rightarrow electrical attraction & capture especially clays
 - c) Mechanical straining in fine grained media.
4. Lack of attenuation make colloids attractive as tracers (conservative) and unretarded.