Leakage pathways and potential impacts of CO_2 escape

A number of leakage pathways could result in the migration of CO_2 into the surrounding environment. They include leakage through or along injection wells, abandoned wells, undetected faults or those created by injecting CO_2 at too high a pressure, corrosion of cap rocks and cement plugs used to seal injection wells and diffusion into shallower geologic formations. Potential consequences of leakage are equally broad. Releases of CO_2 back into the atmosphere would undermine any climate benefit of geological storage; CO_2 rising into the subsurface could negatively impact soil ecosystems, harming both flora and fauna; CO_2 contamination of surface waters might negatively impact aquatic ecosystems; leakage into groundwater aquifers could degrade their quality by mobilising toxic metals and dissolving other minerals; and human health impacts are a concern should concentrations of CO_2 reach levels higher than 3% by volume.

Source: Benson, S, 2006