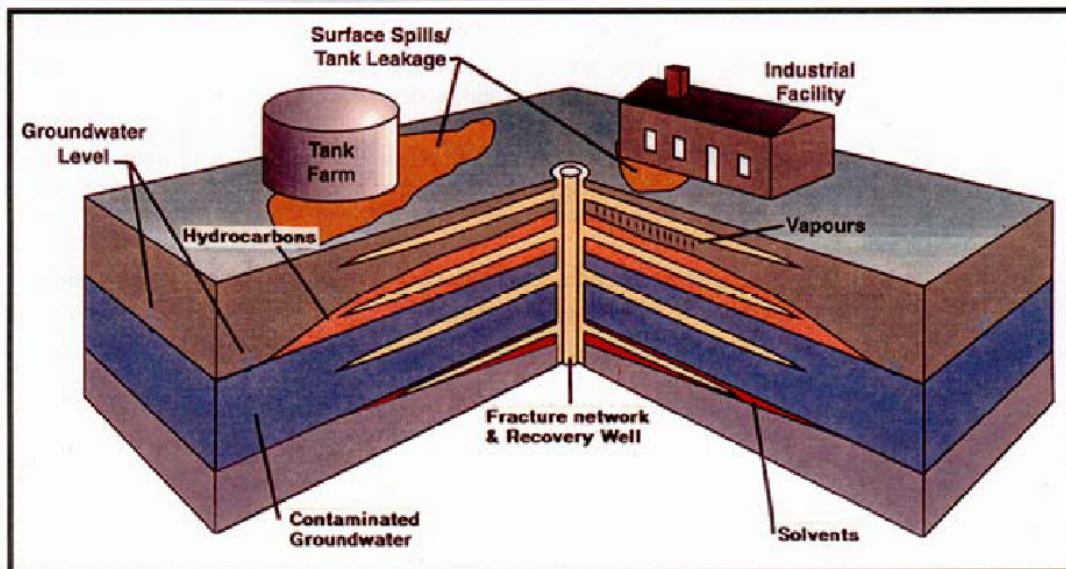


## Soil fracturing technology

Hydraulic soil fracturing is developed to provide services to the geo-environmental industry; it is a process in which fluid is applied to a soil mass until failure (i.e. fracturing) of the soil occurs. Soil fracturing allows to:

- Increase bulk permeability of soil mass;
- Increase radius of influence and effective treatment area;
- Fractures serve as pathways for the delivery of treatment amendments.



Soil hydraulic fracturing can be applied in conjunction with conventional and innovative remedial technologies such as:

- **dual phase extraction;**
- **soil vapour extraction;**
- **bioventing;**
- **liquid hydrocarbons and solvent recovery;**
- **hydraulic containment;**
- **groundwater treatment;**
- **landfill leachate and gas recovery;**
- **in situ bioremediation;**
- **horizontal drilling;**
- **injection processes.**



Fracturing is conducted using specialized down hole fracturing equipment designed for various soil types. The fracturing process creates a network of highly permeable, sand-filled fractures that expedites the recovery or in situ treatment of subsurface contaminants. Soil fracturing can also be used for simultaneously emplacing biological treatment amendments or chemical amendments to destroy contaminants in situ.



Fracture enhanced salt drainage



Installation of wells into horizontal fractured borehole