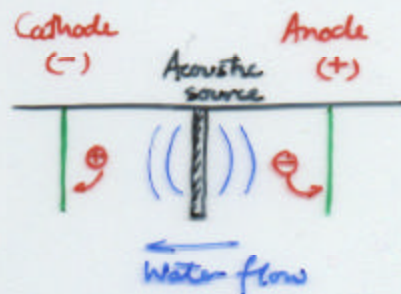


2.2 Electro-acoustic Soil Decontamination (ESD)

- o Electrical gradient and acoustic "shaking" to enhance removal
- o Similar to hybrid electro-osmosis & radio frequency heating but lower frequency (100-1000 Hz)
- o Seismic waves $\left\{ \begin{array}{l} \text{compressional waves} - \text{attenuate with distance as } 1/r^2 \\ \text{shear waves} - \text{attenuate } \propto \omega^2 \end{array} \right.$
- o Mechanisms
 1. Shaking - rearrangement of particles \rightarrow new channels
 2. Cavitation of pore fluids \rightarrow bubble expulsion and frees pore trapped materials.
 3. Decreased fluid viscosities due to heating

Field Implementation

In development.



Level of Demonstration and Performance

Not yet implemented in field

Metals removed more effectively than, for example decane (non-polar)

Difficult to evaluate relative importance of electrical -vs- acoustical.

Applicability and Limitations

Same as electro-osmosis.

Cost and Availability

Lab demonstration only.

Patented by Battelle

Probably not v. good for non-polar organics. RF heating \sim \$40-100/ton.

